

**SITE ASSESSMENT REPORT**

**SUSAN DAVEY PROPERTY**  
1279/1281 East Main Street  
El Cajon, California

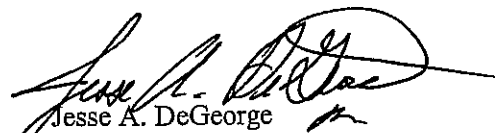
**SECOR Job #08OT.04926.00**

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**SECOR International Incorporated**

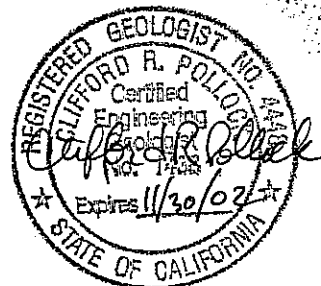
Prepared for:  
**Mr. Richard Reid**  
Susan Davey Property  
7550 Orien Avenue  
La Mesa, California 91941

August 20, 2002

Prepared by:

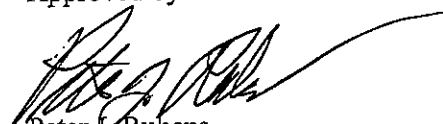
  
Jesse A. DeGeorge  
Project Manager

Reviewed by:



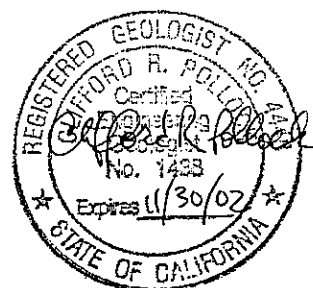
Clifford R. Pollock, CEG #1438  
Principal Engineering Geologist

Approved by:

  
Peter L. Rubens  
Senior Project Manager

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## 1.0 INTRODUCTION

### 1.1 PURPOSE

This report presents the results of site assessment activities completed by SECOR International Incorporated (SECOR) at the Susan Davey Property (formerly the Wurzell Estate Property), located at 1279/1281 East Main Street in El Cajon, California (Figure 1). The purpose of this investigation was to evaluate the vertical and areal extent of hydrocarbon-impacted soil and groundwater upgradient and downgradient of, and proximal to, the former underground storage tank (UST) excavation and the former fuel dispenser islands. Field activities were conducted in accordance with SECOR's *Work Plan to Perform Additional Site Assessment* dated March 12, 2001 (Workplan), and the County of San Diego, Department of Environmental Health, Land and Water Quality Division (LWQD) Workplan approval letter, dated April 3, 2001.

### 1.2 SCOPE OF SERVICES

The following scope of services was performed during the assessment:

- Prepared a site-specific Health and Safety Plan to address potential hazards at the site during assessment activities;
- Obtained a drilling permit from the LWQD for advancement of three soil borings;
- Met with utility representatives to identify and mark locations of subsurface utilities;
- Collected 13 soil vapor samples from six shallow soil boring locations (VP-8 through VP-13; see Figure 2); analyzed all of the samples for benzene, toluene, ethylbenzene and total xylenes (BTEX);
- Supervised the excavation of two trenches (Trench#1 and Trench#2) in the former fuel dispensing area, and the advancement of three soil borings (SB-4 through SB-6);
- Collected 16 soil samples from the trench excavation (seven total) and soil borings (nine total); monitored headspace organic vapors in soil samples with an organic vapor analyzer (OVA) during sampling activities; and analyzed soil samples collected during site assessment activities for total petroleum hydrocarbons as gasoline (TPHg), BTEX and methyl-t-butyl ether (MTBE);
- Purged seven groundwater monitoring wells (MW-1 through MW-7); collected representative groundwater sample from each well; and Analyzed groundwater samples collected from monitoring wells MW-1 through MW-7 for TPHg, BTEX, MTBE, and four other fuel oxygenates, which were t-butyl alcohol (TBA), diisopropyl ether (DIPE), ethyl-t-butyl ether (ETBE), and t-amyl methyl-ether (TAME);
- Performed a health risk assessment to evaluate potential cancer risk to employees of the on-site businesses;
- Performed a sensitive receptor survey to evaluate potential sensitive receptors in the site vicinity;
- Prepared this report to include a discussion of field procedures, findings and conclusions.

## 2.0 BACKGROUND INFORMATION

### 2.1 SITE DESCRIPTION

The subject site is located at the southwest corner of the intersection of East Main Street and Second Street in El Cajon, California. The property is occupied by a Der Wienerschnitzel fast-food restaurant, Los Panchos Restaurant (a Mexican restaurant), an asphalt parking area, and various planters and grass areas (Figure 2).

### 2.2 SITE BACKGROUND

#### Initial Investigation

During a Phase I environmental site assessment (ESA) conducted by SECOR, records were found which indicated that the site had been operated as a gasoline station from approximately 1960 through 1982 (Figure 3). A review of Polk Directories for the site listed the occupants as Lee's Shell from 1960 to 1969, and Hudson Oil Company from 1970 to 1982. According to LWQD records, four UST systems were removed from the site in 1984 and 1985. Based on a sketch found in the files at the City of El Cajon Fire Department, and a 1973 aerial photograph, the USTs were located in the northeast portion of the site. Currently, this area is covered by the footprint of the Der Wienerschnitzel building. No information was available on the size or contents of the USTs. According to LWQD records, no soil sampling was conducted during UST removal.

#### First Subsurface Soil Assessment

In July 1996, soil borings B-1, B-2, and B-3 (see Figure 2) were advanced to depths ranging from 14 to 18 feet below ground surface (bgs). The borings were drilled to evaluate the potential presence of hydrocarbon impacted soil and groundwater from historic releases from the former UST systems. Soil samples were collected at approximately 4-foot depth intervals, and grab groundwater samples were collected from each boring to evaluate groundwater quality. TPHg soil concentrations ranged from 410 milligrams per kilogram (mg/kg) in a soil sample from boring B-2 collected at 6.5 feet bgs (sample B2-6.5) to 10,000 mg/kg in sample B2-11; see Figure 4 and Table 1). No TPHg concentrations above laboratory detection limits were reported in the boring B-1 samples collected at 6, 10.5, 15, and 18 feet bgs; and in three samples collected below the water table in borings B-2 and B-3 (at sample depths ranging from 14 to 18 feet bgs). Benzene concentrations ranged from nondetectable (<0.05 mg/kg) in seven samples to 29 mg/kg in sample B2-11. A total recoverable petroleum hydrocarbon (TRPH) concentration of 6,400 mg/kg was reported for sample B3-11. TPHg concentrations in the grab groundwater samples ranged from 40,000 to 120,000 micrograms per liter (µg/L). Similarly, benzene concentrations in the three grab groundwater samples ranged from 89 to 10,000 µg/L (see Table 2).

The preliminary analytical results were forwarded to the LWQD, which opened an unauthorized release case for the site. Based on the soil and groundwater petroleum hydrocarbon constituent concentrations and the location of the site within a beneficial groundwater use area, the LWQD directed that a site assessment be performed to evaluate the extent of hydrocarbon impact to soil and groundwater.

#### First Groundwater Conditions Assessment

In March 1998, a SECOR geologist supervised the drilling and sampling of four shallow well borings (MW-1 through MW-4, see Figure 2). Each well boring was completed as a groundwater monitoring well. No TPHg concentrations above the laboratory reportable limit (10 mg/kg) were reported in the soil samples collected from well borings MW-1 through MW-3. One of the three soil samples from well boring MW-4 (the 10-foot depth sample) contained 2,851 mg/kg TPHg with 16 mg/kg benzene. Following development, each of the newly installed monitoring wells was sampled. The representative groundwater samples from all four wells

newly installed monitoring wells was sampled. The representative groundwater samples from all four wells contained detectable concentrations of TPHg and BTEX constituents. Well MW-2 contained the highest concentrations of each analyzed constituent. The MW-2 groundwater sample contained 174,000 µg/L, with respective BTEX analyte concentrations of 3,940; 3,620; 1,500; and 4,310 µg/L. MTBE was detected only in the MW-1 groundwater sample (at 17.6 µg/L). None of the samples contained detectable soluble lead concentrations above 100 µg/L.

The results of the groundwater characterization assessment were presented to the LWQD in a report, titled *Site Assessment Report*, dated April 28, 1998. The LWQD reviewed the report and requested additional site assessment. Better determination of the lateral extent of hydrocarbon impacted groundwater was required, as well as an evaluation of the potential cancer risk to employees of the existing on-site businesses.

#### Second Subsurface Soil Assessment

On April 19, 1999, a SECOR geologist supervised the advancement of seven shallow soil vapor probes (VP-1 through VP-7; see Figure 2). Soil vapor samples were collected from each newly-installed vapor probe. Vapor samples collected from the four vapor probes located adjacent to the Der Wienerschnitzel building (VP-1 through VP-4) contained benzene concentrations ranging from nondetectable less than 0.1 µg/L to 1,079 µg/L at 2 feet bgs and from 2.8 µg/L to 750 µg/L at 5 feet bgs. By contrast, vapor samples collected from the three vapor probes adjacent to the Los Panchos Restaurant (VP-5 through VP-7) contained nondetectable benzene vapor concentrations in both depth intervals (2 and 5 feet bgs). The laboratory detection limit was 0.1 µg/L. Based on the results of the soil vapor migration study and the health risk assessment, SECOR concluded that the increased cancer risk to workers in the on-site businesses (due to residual benzene concentrations beneath the site) is less than a one in a million.

#### Second Groundwater Conditions Assessment

On May 31 and June 7, 2000, a SECOR geologist supervised the drilling and sampling of three additional well borings (MW-5 through MW-7; see Figure 2). Each well boring was completed as a shallow groundwater monitoring well. No TPHg, benzene or MTBE concentrations above the laboratory reporting limits were found in the soil samples from well borings MW-5 through MW-7. The laboratory reporting limits were 0.5 to 10 mg/kg for TPHg, 0.005 mg/kg for BTEX constituents, and 0.005 mg/kg for MTBE. Following development, each of the existing and newly-installed monitoring wells was purged and sampled. The groundwater samples from wells MW-1, MW-2 and MW-4 contained detectable concentrations of TPHg and BTEX constituents; those in the sample from well MW-2 were the highest. The MW-2 groundwater sample was found to contain 7,900 µg/L TPHg, with respective BTEX concentrations of 1,100; 340; 420; and 1,000 µg/L. No TPHg or BTEX constituent concentrations above the respective laboratory reporting limits (0.5 to 50 µg/L) were found in the groundwater samples from wells MW-3 and MW-5 through MW-7. Similarly, no MTBE concentrations were detected in the groundwater samples from wells MW-2, MW-3, and MW-5 through MW-7. MTBE concentrations of 52 and 1.2 µg/L were reported for wells MW-1 and MW-4, respectively.

#### Subsurface Utility Survey

In June 2000, SECOR personnel conducted a subsurface utility survey. As part of the work scope, SECOR reviewed available subsurface utility maps prepared by San Diego Gas and Electric (SDG&E) (for gas and electric lines), Pacific Bell (for telephone lines), Helix Water District (for water supply lines), and the City of El Cajon (for sanitary sewer lines). The results of the map search were field-truthed. The purpose of the investigation was to identify potential man-made contaminant migration pathways in the vicinity of the subject property. Several utility lines were determined to be present, at depths ranging from approximately 3

to 5 feet bgs, in the site vicinity. Utility line research also indicated the presence of sewer lines located in the site vicinity. Since the burial depths of these sewer lines were unknown, SECOR concluded that the lines potentially could provide a hydrocarbon migration pathway.

The results of SECOR's May 2000 groundwater conditions investigation and June 2000 subsurface utility survey were presented to the LWQD in a document, titled *Site Assessment Report* (SAR), dated August 22, 2000. Following review of the SAR, the LWQD requested that an additional site assessment be performed at the site. Specifically, the LWQD directed that a better determination of the lateral and vertical extent of hydrocarbon-impacted soil in the vicinity of the former UST system be performed. The LWQD also required reevaluation of the potential cancer risk to workers at the on-site businesses (e.g., Der Wienerschnitzel fast-food restaurant); and performance of a survey of potential sensitive receptors in the site vicinity.

#### Current Site Investigation

The results of this additional site assessment are included in succeeding sections of this report. Section 4.0 presents the results of the off-site well and sensitive receptor surveys. Section 5.0 presents the soil vapor health risk assessment results. Intrusive site investigation activities are presented in Section 6.0. Details of the chemical testing program are provided in Section 7.0. The findings of this investigation and conclusions regarding the areal and vertical extent of hydrocarbon-impacted subsurface soil and groundwater are presented in Sections 8.0 and 9.0, respectively.

### **3.0 REGIONAL GEOLOGIC AND HYDROGEOLOGIC SETTING**

#### **3.1 GEOLOGIC SETTING**

According to Kennedy (1975), the El Cajon area consists of Holocene-age alluvial sediments, underlain by pre-Tertiary-age granitic rocks of the Southern California Batholith. Drilling and soil sampling activities performed by SECOR personnel indicate that the subject site is underlain by artificial fill overlying Quaternary-age alluvium. Observations made during drilling activities suggest that the site lithology, to a depth of at least 20 feet bgs, generally consists of sands, clayey sands, silty sands, and silts.

#### **3.2 HYDROGEOLOGIC SETTING**

According to the California Regional Water Quality Control Board (RWQCB), the subject site is located in the El Cajon Hydrologic Subarea (HSA 7.13) of the Lower San Diego Hydrologic Area (HA 7.10) of the San Diego Hydrologic Unit (HU 7.00). Groundwater in the El Cajon HSA has been designated as beneficial use for municipal and agricultural supply, and potentially beneficial use for industrial service and process water supply. Based on review of a map prepared the County Water Authority (1996), the site is located at the boundary of a sensitive aquifer (9-16).

Depth to first encounter of groundwater beneath the subject site varies seasonally from approximately 8 to 11 feet bgs. Groundwater in the shallow aquifer is under unconfined conditions. Therefore, the water table represents the surface of the uppermost aquifer. Groundwater flow direction is toward the northwest at a gradient ranging from 0.009 feet per foot (ft/ft).



#### 4.0 OFF-SITE WELL AND SENSITIVE RECEPTOR RESEARCH

SECOR performed an off-site sensitive receptor survey to evaluate potential adverse impacts of the dissolved gasoline plume on surrounding sensitive receptors. For the purposes of this evaluation, the sensitive receptors researched were domestic or production water supply wells, surface water bodies, schools and day care centers. As part of the evaluation, SECOR performed the following activities: 1) reviewed agency water well databases; 2) reviewed the EcoSearch™ and GeoTracker™ databases; 3) reviewed the U.S.G.S. El Cajon, California 7.5-minute quadrangle topographic map; and, 4) performed a windshield survey of properties located within a 550-foot radius of the site vicinity. ~~SECOR also contacted personnel from the San Diego Water Authority for information on sources of potable water for the neighborhood.~~ delete

During the agency database research, five water wells were identified within a one half-mile radius of the subject site. All were located hydrologically cross-gradient (i.e., with respect to the groundwater flow direction) to the site. All of these wells were listed as "destroyed" on the database reviewed at the Department of Environmental Health. None of the identified wells were located within a 500-foot radius of the subject site.

SECOR personnel conducted a field receptor survey (windshield survey) to confirm the existence or absence of the wells identified in the agency database research. During the field receptor survey, no surface water bodies, schools or day care facilities were identified within a 500-foot radius of the subject site.

Based on evaluation findings, it appears that there are no sensitive receptors including domestic or production groundwater wells, surface water bodies, schools or day care centers within a 500-foot radius of the subject site.

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## 5.0 SOIL VAPOR RISK ASSESSMENT

SECOR performed a health risk assessment to evaluate the potential impact of motor fuel hydrocarbon vapors to workers at the Der Wienerschnitzel fast-food restaurant located on-site. This assessment included calculations using actual benzene concentrations obtained from soil vapor analyses. The purpose of this assessment was to demonstrate that soil and groundwater benzene concentrations beneath the site present less than a one in a million increased cancer risk. The assessment was performed using data obtained April 19, 1999, and January 22, 2002.

### 5.1 SOIL VAPOR RISK ASSESSMENT PROCEDURES

On January 22, 2002, SECOR personnel conducted a supplemental soil vapor survey at the site. The survey included installation and sampling of six additional soil vapor probes (VP-8 through VP-13; see Figure 2) around the perimeter of the Der Wienerschnitzel fast-food restaurant building. The soil vapor sampling locations were selected to evaluate the presence of volatile organic compounds (VOCs) in vapors beneath the building. The sampling locations were selected to assess areas that had not been covered during the April 1999 soil vapor survey. Vapor samples were collected from each vapor probe at approximate depths of 2 and 5 feet bgs.

HP Labs (HP) of Solana Beach, California performed the soil vapor survey. HP (1998) describes the typical sampling procedures used to collect and analyze soil vapor samples at similar sites. The sampling apparatus consists of polyethylene tubing within a 1.5-inch nominal diameter push rod (drive tube), connected to a syringe within a hardened-steel drop-off point. The vapor sampling point is threaded onto the leading edge of a 1.5-inch nominal diameter probe rod and advanced to the desired sampling depth using a Strataprobe® hydraulic direct-push drilling system. Once inserted to the desired depth, the probe rod is retracted approximately one to two inches, thereby exposing the vapor sampling port to the subsurface soil. Approximately three dead volumes of air then are extracted through the syringe to flush the sample probe and tubing prior collecting the sample. Upon completion of vapor purging, the soil vapor samples are collected using a 30-cubic centimeter (cc) vacuum syringe. Each 30-cc syringe is transported to a mobile laboratory on-site for immediate analysis. Each direct-push boring then is backfilled with hydrated granular bentonite and capped with either cold-patch asphalt or cement paste to match the original surface.

HP performed the vapor survey at the site in accordance with the above-described procedures. Downhole drilling and sampling equipment either were changed out (i.e., the disposable vapor sampling points) or thoroughly decontaminated between uses (i.e., undamaged drive tubes). Drive tubes that were bent or otherwise rendered unserviceable were decontaminated and discarded. Decontamination consisted of scrubbing in a tri-sodium phosphate detergent solution, rinsing in a tap water bath, and final rinsing in a deionized water bath.

### 5.2 SOIL VAPOR SAMPLE ANALYTICAL TESTING PROGRAM

Twelve soil vapor samples were submitted for analysis to the HP mobile laboratory. HP is a state-certified laboratory based in Escondido, California. The soil vapor samples were analyzed for BTEX constituents by U.S. EPA Method 8260B

### 5.3 SOIL VAPOR ANALYTICAL RESULTS

Soil vapor sample analytical result, including locations and sample depths, are summarized in Table 4. A copy of the HP laboratory report is provided in Appendix A.

Benzene vapor concentration ranged from 4.1 to 75 micrograms per liter ( $\mu\text{g/L}$ ) in the four samples with detectable concentrations. Benzene vapors were not detected in eight samples; the laboratory detection limit was 0.1  $\mu\text{g/L}$ . Similar vapor concentration distributions were noted for toluene, ethylbenzene and total xylenes. For each compound, the laboratory detection limit was 0.1  $\mu\text{g/L}$ . Toluene vapor concentrations ranged from 1.3 to 4.1  $\mu\text{g/L}$  in seven samples; ethylbenzene vapor concentrations ranging from 1.2 to 3.9  $\mu\text{g/L}$  in three samples; and total xylenes vapor concentrations ranged from 1.6 to 4.5  $\mu\text{g/L}$  in three samples.

The highest BTEX analyte vapor concentrations were found in the 5-foot sample from vapor probe VP-10 (sample VP10-5) for benzene, ethylbenzene and total xylenes; and the 5-foot sample from VP11 (sample VP11-5) for toluene. As shown on Figure 2, sample VP10-5 was collected near the northeast corner of the Der Wienerschnitzel building; and sample VP11-5 was taken at the northwest corner of a grassy area to the northwest of the building.

#### 5.4 SOIL VAPOR MIGRATION AND RISK ASSESSMENT

SECOR used the soil vapor sample analytical data in Table 4 to estimate the potential cancer risk to humans resulting from diffusion of benzene vapors (the selected target compound) from hydrocarbon-impacted soil and groundwater, through the vadose zone and into a commercial building built on a typical slab-on-grade foundation. The benzene vapor concentrations in the 2-foot and 5-foot depth samples were averaged (by the arithmetic mean method) to derive a single value for running the selected vapor migration and risk assessment model (see succeeding paragraphs). Where actual analytical concentrations were less than the laboratory detection limit, the detection limit of 0.1  $\mu\text{g/L}$  was used. The January 2002 analytical data and the April 1999 analytical data were averaged together to determine an arithmetic mean concentration for use in the risk assessment model.

In accordance with the current and foreseeable future use of the site, conservative SAM commercial/industrial worker exposure criteria were used. The risk assessment was performed using the SAM Vapor Risk Assessment Model (Version: November 1999; Revised: January 8, 2002). The calculations were completed using the SAM default and site-specific parameters indicated below:

Molecular Diffusivity for Benzene = 0.088 centimeters squared per second ( $\text{cm}^2/\text{sec}$ );

Slab Attenuation Factor = 0.1 (SAM conservative default for an older concrete slab);

Ventilation Rate = 0.83 air exchanges per hour (commercial/industrial default);

- Room Height = 8 feet (SAM conservative default);
- Total Soil Porosity = 0.3 (SAM conservative default)
- Soil Air Porosity = 0.2 (SAM conservative default)
- 1.06  $\mu\text{g/L}$  benzene and 2.09  $\mu\text{g/L}$  benzene (site specific, arithmetic mean concentrations at respective depths of 2 feet bgs (0.61 meters) and 5 feet bgs (1.52 meters); and
- The total indoor air concentration ( $C_i$ ) of benzene was calculated using the average of the soil vapor sample analytical results for samples collected at 2 and 5 feet bgs of 1.06 and 2.09  $\mu\text{g/L}$ , respectively. Based on these results, benzene  $C_i$  estimates by the model are 1.42 E-04 and 1.12E-04  $\mu\text{g/L}$ , using data from 2 and 5 feet bgs, respectively.

Cancer risk calculations using the resulting benzene  $C_t$  estimate were performed using equations from the U.S. Environmental Protection Agency (EPA) Risk Assessment Guidance (RAG) for Superfund Sites (EPA, 1989). The calculations were completed using the conservative SAM default parameters in the model as indicated below:

- Slope Factor = 0.1 milligrams per kilograms-day ( $\text{mg/kg-day}$ )<sup>-1</sup>;
- Inhalation Rate = 20 cubic meters per day  $\text{m}^3/\text{day}$ ;
- Body Weight = 70 kilograms;
- Averaging Time = 25,550 days (70 years);
- Exposure Time = 12 hours/day (commercial/industrial);
- Exposure Duration = 250 days/year (commercial/industrial); and
- Reference Dose = 0.0017  $\text{mg/kg-day}$ .

The potential cancer risk to humans from benzene vapor at 2 feet bgs was calculated to be  $4.96\text{E-}07$ , equating to a cancer probability of 1 in 2,016,129. The potential cancer risk to humans from benzene vapor at 5 feet bgs was calculated to be  $3.93\text{E-}07$ , equating to a cancer probability of 1 in 2,544,529. These results indicate that the benzene vapor beneath the site does not pose a significant threat to human health. A copy of the printouts of the SAM Vapor Risk Assessment Model spreadsheets for the "Susan Davey Property--Typical Commercial Building" is presented in Appendix B.

The conservative health risk calculations indicate that, under current subsurface conditions and commercial/industrial exposure criteria, benzene vapor migration into the building should not pose a threat to human health of workers above a one-in-a-million risk level. The most conservative concentrations and risk scenarios indicate that the increased potential cancer risk is less than the SAM acceptable cancer risk.

## **6.0 SITE ASSESSMENT METHODS**

This section presents a description of the field methods and procedures that were used to conduct intrusive investigations of subsurface soil and groundwater conditions at the site.

### **6.1 PRE-FIELD PREPARATION**

#### **6.1.1 Health And Safety Plan**

A site-specific Health and Safety Plan was prepared by SECOR prior to initiation of field activities. On-site personnel were required to review the Health and Safety Plan prior to commencement of the site assessment and were instructed to conduct field activities in accordance with plan guidelines.

#### **6.1.2 Drilling Permit**

Prior to commencing assessment activities, SECOR submitted a permit application and appropriate fees to the LWQD for the installation of three soil borings. The LWQD approved the permit request on December 10, 2001. A copy of the approved drilling permit is provided in Appendix C.

#### **6.1.3 Underground Utility Clearance**

Prior to drilling activities, potential drilling locations were marked on-site and Underground Service Alert (USA) was notified. USA notified local utility companies of the scheduled subsurface investigation, and underground utilities were marked by affected utility representatives. In addition, SECOR met with Subsurface Alert, Inc., a private utility locator, to mark on-site underground utilities.

### **6.2 TRENCHING AND SOIL SAMPLING**

To determine whether an abandoned product piping was present, SECOR performed a shallow exploratory excavation adjacent to the former fuel dispenser islands. On February 7, 2002, a SECOR geologist supervised the excavation of subsurface soil in this area. Trench 1 was excavated along a 53-foot length to a depth of 3 feet bgs. Similarly, Trench 2 was excavated along a 58-foot length to the same depth. The excavation activities were performed by Qual-Pac Services. Following the excavation activities, SECOR collected seven soil samples (SS-1 through SS-7; see Figure 4) from the floor of the trenches. The soil samples were collected, screened for the presence of organic vapors, and prepared using the procedures presented in Appendix D. Soil cuttings generated during drilling activities were placed in 55-gallon steel drums. The drummed cuttings were labeled, stored at a central location, and left on-site pending receipt of the analytical results and determination of appropriate waste disposal.

### **6.3 DRILLING AND SOIL SAMPLING**

On March 5, 2002, a SECOR geologist supervised the drilling and sampling of three soil borings (SB-4, SB-5 and SB-6; see Figure 2 and Figure 5). The borings were drilled by Tri-County Drilling (TCD) using a CME 75 drilling rig equipped with 8-inch outside diameter, continuous-flight, hollow-stem augers (HSAs).

During drilling, soil samples were collected at depths of 5, 10 and 12 feet bgs in each boring. The samples were collected, prepared, and screened for the presence of organic vapors using the procedures presented in Appendix D. Soil cuttings were logged by a SECOR geologist using the visual/manual method for the

are provided in Appendix E. Downhole drilling and sampling equipment was decontaminated in accordance with the decontamination procedures described in Appendix D. Soil cuttings generated during drilling activities were placed in 55-gallon drums, labeled, centrally-located, and left on-site pending receipt of the results of laboratory analyses and determination of appropriate waste disposal.

#### **6.4 MONITORING WELL PURGING AND SAMPLING**

On February 19, 2002, depth to static water (DTW) was measured in wells MW-1 through MW-7 using an electronic water level meter. Following gauging, the wells were purged using disposable TeflonJ bailers and sampled in accordance with LWQD guidelines (provided in the 2002 SAM Manual). Based on LWQD guidelines, wells MW-1 and MW-3 through MW-7 were characterized as fast recharging; approximately 1.5 borehole volumes of water were removed from each well to allow fresh formational water to enter. Well MW-2 was characterized as slow recharging; approximately one borehole volume of water was removed from this well prior to sampling. Three water-quality indicators (i.e., conductivity, pH, and temperature) were measured repeatedly during purging to assist in evaluating when a sufficient volume of stagnant water had been removed.

Groundwater samples were collected from each well in clean disposable bailers and transferred to acidified 40-ml glass vials. The water samples were delivered to a California-certified analytical laboratory (ZymaX Envirotechnology of San Luis Obispo, California) for chemical analysis. Monitoring well sampling and decontamination procedures are described in Appendix D. DTW and well purging and sampling data were recorded on Monitoring Well Gauging Logs and on Well Purging/Sampling Logs. A copy of these logs is provided in Appendix F. Purged water was placed in two 55-gallon steel drums, labeled, centrally-located, and left on-site pending receipt of laboratory results and determination of appropriate waste disposal.

#### **6.5 WASTE MATERIALS MANAGEMENT**

As noted in the preceding sections, soil cuttings and purged groundwater were stored on-site in labeled 55-gallon steel drums. Soil cuttings were waste profiled using the sample analytical results from the soil borings. Drummed wastewater was categorized on the basis of the groundwater analytical results from the well sampling event. The wastes were handled as follows:

- Soil cuttings were transported by EFR Environmental Services, Inc. (EFR) as non-hazardous materials to Dome Rock Industries, Inc for treatment and/or disposal.
- Drummed purge water was transported by EFR as non-hazardous waste to Dome Rock Industries, Inc for treatment and/or disposal.

EFR transported the drummed wastes on March 20, 2002 under a non-hazardous waste manifest. A copy of the waste manifest is provided in Appendix G.

## 7.0 CHEMICAL TESTING PROGRAM

### 7.1 CHEMICAL TESTING PROCEDURES

Select soil samples collected during the drilling activities were analyzed by ZymaX Envirotechnology, Inc. (ZymaX) for TPHg, BTEX, and MTBE using EPA Method 8260 and GC/MS combination (equivalent to EPA Method 8260B). In addition, the trench soil samples were analyzed by HP for TPHg using CA DHS Method, and for BTEX and MTBE using EPA Method 8260B. Groundwater samples that were collected from the monitoring wells were analyzed by ZymaX for TPHg, BTEX, MTBE, TAME, TBA, DIPE and ETBE by EPA Method 8260 and GC/MS combination (equivalent to EPA Method 8260B).

### 7.2 ANALYTICAL RESULTS

#### 7.2.1 Soil Analytical Results--Trenching

Analytical results are summarized in Table 1; and TPHg, benzene and MTBE concentration distributions are illustrated on Figure 4. A copy of the laboratory report and chain-of-custody documentation are included in Appendix H. No TPHg, BTEX or MTBE concentrations above the respective constituent laboratory detection limits were reported in the seven soil samples (SS-1 through SS-7) collected from the bottom of Trench 1 and Trench 2.

#### 7.2.2 Soil Analytical Results--Drilling

Analytical results are summarized in Table 2; and TPHg and benzene concentration distributions are illustrated on Figure 5. A copy of the laboratory report and chain-of-custody documentation are included in Appendix H.

TPHg concentrations were reported above the laboratory detection limit ( $<0.5$  mg/kg) in four of the nine samples submitted for analysis. Detectable concentrations of TPHg ranged from 80 mg/kg in sample SB-4/10' to 1,800 mg/kg in sample SB-5/12'. The remaining five samples contained nondetectable TPHg concentrations.

Benzene concentrations were reported above the laboratory detection limits (ranging from  $<0.005$  to 0.1 mg/kg) in four of the nine samples submitted for analysis. Detectable benzene concentrations ranged from 0.015 mg/kg in sample SB-6/10' to 3.9 mg/kg in sample SB-5/12'. The remaining five soil samples contained nondetectable benzene concentrations. Similarly, detectable concentrations of toluene, ethylbenzene and total xylenes were found in the same four samples. The maximum concentrations were 44 mg/kg toluene, 22 mg/kg ethylbenzene and 150 mg/kg total xylenes. All of these were found in the 12-foot sample from boring SB-5 (sample SB-5/12'). This boring was located in the north-central portion of the Susan Davey Property between the Los Panchos Restaurant and the Der Wienerschnitzel building. No MTBE concentrations above laboratory detection limits ( $<0.005$  to 0.5 mg/kg) were reported in any of the soil samples submitted for analysis.

### 7.2.3 Groundwater Sampling Analytical Results

Laboratory analytical results are summarized in Table 3; and the dissolved TPHg, benzene and MTBE concentrations are illustrated on Figure 10. A copy of the laboratory report and chain-of-custody documentation are included in Appendix H.

TPHg concentrations were reported above the laboratory detection limit (<50 micrograms per Liter ( $\mu\text{g/L}$ ) in three of the seven samples submitted for analysis. Detectable concentrations of TPHg ranged from 480  $\mu\text{g/L}$  in the sample from well MW-4 to 6,300  $\mu\text{g/L}$  in the sample from well MW-2. The remaining four groundwater samples contained nondetectable concentrations of TPHg. Similarly, the groundwater samples from the same three wells (MW-1, MW-2 and MW-4) contained detectable concentrations of BTEX analytes. The most heavily-impacted well is well MW-2, which contained 640  $\mu\text{g/L}$  benzene, 83  $\mu\text{g/L}$  toluene, 270  $\mu\text{g/L}$  ethylbenzene and 830  $\mu\text{g/L}$  total xylenes. The lowest detectable BTEX concentrations were 39  $\mu\text{g/L}$  benzene, 0.6  $\mu\text{g/L}$  toluene, 19  $\mu\text{g/L}$  ethylbenzene and 0.9  $\mu\text{g/L}$  total xylenes. With the exception of ethylbenzene (which was collected from well MW-4), all of these values were found in the sample from well MW-1. As shown on Figure 2, well MW-1 is located to the northwest of the Der Wienerschnitzel building (close to vapor point VP11), and well MW-4 is located near the southwest corner of the Los Panchos Restaurant. Well MW-2 is located near the northeastern corner of the Los Panchos Restaurant.

MTBE concentrations were reported above the laboratory detection limit (ranging from <0.5 to <20  $\mu\text{g/L}$ ) in two of the seven well water samples (samples MW-1 and MW-4). Sample MW-1 contained 78  $\mu\text{g/L}$  MTBE, and sample MW-4 contained 0.7  $\mu\text{g/L}$  MTBE. In addition, all of the groundwater samples were analyzed for four other fuel oxygenates (TBA, DIPE, ETBE and TAME). A TBA concentration (10  $\mu\text{g/L}$ ) was found in only sample (from well MW-1). Detectable DIPE concentrations ranged from 0.9  $\mu\text{g/L}$  in sample MW-4 to 680  $\mu\text{g/L}$  in sample MW-2. DIPE concentrations were not detected in four of the samples (samples MW-3 and MW-5 through MW-7). No ETBE or TAME concentrations were reported above their respective laboratory detection limits (which ranged from <0.5 to <20  $\mu\text{g/L}$ ) in any of the seven well water samples.



## 8.0 FINDINGS

Based on the results of the additional site assessment activities described above in Sections 3.0 through 7.0, SECOR makes the following findings on site conditions and the impacts of hydrocarbon-impacted soil and groundwater on sensitive receptors in the site vicinity.

### Local Hydrostratigraphic Conditions

Subsurface soil consists of clayey and silty sands, poorly graded sands with clays, and silts with sand from surface to approximately 12 feet bgs, the maximum depth of exploration for this investigation. The soils are identified as artificial fill overlying Quaternary-age alluvium. These results are consistent with the deeper well borings that have been advanced on the site for installation of groundwater monitoring wells MW-1 through MW-7.

No groundwater was encountered during drilling to 12 feet bgs in various portions of the site. However, the reported static water level depths in existing monitoring wells ranged from 8.66 to 10.92 feet bgs. This suggests that groundwater locally is under semi-confined (instead of water table) conditions, since the apparent piezometric rise in the wells is at least 1.08 to 3.34 feet. SECOR calculated groundwater flow to be to the northwest at a gradient of 0.009 ft/ft (Figure 7), using the well locations, surveyed wellhead elevations from Table 5, and February 19, 2002 DTW measurements. Figure 6 and Figure 7 depict lithologic and hydrostratigraphic relationships across the site.

### Other Assessment Findings

Five water wells were identified on various agency databases as being located within a one-half-mile radius of the site. However, none of these wells are still in service. No surface water bodies, schools or day care facilities are located within the same on-half mile radius of the site.

The results of a supplemental soil vapor survey reveal that the shallow subsurface in various portions of the site contains BTEX soil vapor concentrations. However, none of these analyte vapor concentrations pose a threat to the health of workers in the on-site structures. These structures are a Der Wienerschnitzel fast-food restaurant and Los Panchos Restaurant. There is less than a one-in-a-million increased cancer risk for exposed workers in the restaurants who inhale benzene vapors.

Elevated concentrations of TPHg and benzene were found in the 12-foot samples from soil borings SB-4 (located to the north of the Der Wienerschnitzel building) and SB-5 (located midway between the two restaurant buildings in the north central portion of the site). Soil samples from these two borings also contained detectable concentrations of toluene, ethylbenzene and total xylenes; the maximum concentrations of each constituent were found in the 12-foot sample from boring SB-5 (sample SB-5/12').

Groundwater in the shallow aquifer beneath the site has been impacted by motor fuel hydrocarbons, including TPHg, BTEX constituents, MTBE, TBA and DIPE. The most-heavily impacted groundwater monitoring wells are MW-1 (located near the Der Wienerschnitzel building), MW-2 (located between the two restaurant buildings, but closer to Los Panchos Restaurant) and MW-4 (located near the western wall of the Los Panchos Restaurant).

## 9.0 CONCLUSIONS

Based on SECOR's field observations, the results of laboratory analyses of soil and groundwater samples, and the groundwater flow direction evaluated during this assessment, SECOR concludes the following:

An unauthorized release(s) of motor fuel hydrocarbons, which appear to be gasoline products, has occurred at the site. The source of the release(s) is believed to be former UST systems that were operated by a former gasoline service station. Based on the distribution of TPHg and BTEX constituents (particularly benzene) in subsurface soils across the site, there appear to be two separate release areas. The first is the former USTs and the second is the former dispenser island area (see Figure 3).

The lateral extent of TPHg-impacted soil, in the vicinity of the former USTs, appears to be defined to the west, north and east by well boring MW-1 and soil borings SB-4 and B1, respectively, as shown in Figure 5. ~~To the south of the former USTs, the lateral extent remains poorly defined.~~ It should be noted that the north end of the Der Wienerschnitzel fast-food restaurant now covers this southern area. The base of the hydrocarbon-impacted soil plume extends to the capillary fringe of the uppermost aquifer proximal to soil boring SB-4. Boring SB-4 likely is nearest to the original leak source, which appears to be close to the northern end of the former UST tank pit.

~~The lateral extent of TPHg-impacted soil, in the vicinity of the former dispenser island area, appears to be defined to the northwest, east and possibly south by well borings MW-2, MW-1 and MW-3, respectively. Although adequate definition has been achieved in the vicinity of the former dispenser islands and UST excavation to proceed with site remedial considerations, these areas (i.e., southwest of former dispenser islands and south of former UST excavation) may require additional shallow soil assessment.~~ Figure 5 depicts the three-dimensional distribution of TPHg and benzene in subsurface soil at the site.

Portions of the site are underlain by hydrocarbon-impacted groundwater, whose source is believed to be the same two gasoline product releases described above. Based on the current distribution of motor fuel hydrocarbon constituents in shallow groundwater (see Figure 10), the most-heavily impacted portion of the groundwater plume is located in the north central portion of the site. This area corresponds well with the former dispenser island area, and particularly with the location of soil boring SB-5. The leading edge of the groundwater plume appears to be well defined in the downgradient direction (i.e., to the northwest), upgradient direction (i.e., to the southeast), and crossgradient (i.e., northeast and southwest).

The capillary fringe of the uppermost aquifer was not encountered at 12 feet bgs, which is more than one to three feet deeper than the depth to static water measured in the wells on February 19, 2002. Consequently, SECOR concludes that the aquifer is under semi-confining conditions. If the aquifer were an unconfined (water table) aquifer, the surface of the aquifer would be the water table. All of the 12-foot deep soil borings drilled during the additional site assessment described in this report would have encountered this water table at depths of approximately 9 to 10 feet bgs.

Due to the presence of hydrocarbon-impacted soil and groundwater in the portions of the site now occupied by restaurants, soil vapors can enter the buildings. However, the results of a health risk assessment demonstrate that the increased cancer risk posed by workers inhaling benzene vapors is less than one-in-a-million.

## 10.0 RECOMMENDATIONS

Based on the information presented in this report, SECOR presents the following recommendations:

- Perform an additional shallow soil assessment in accessible areas to the southwest of the former dispenser islands and to the south of the former UST excavation. The purpose will be to attain better definition of the lateral extent of TPHg-impacted soil in these areas. However, it is SECOR's recommendation that sufficient soil assessment is present at the site to proceed with the preparation of the Corrective Action Plan.
- Hydrocarbon impact is present in groundwater beneath the site, and the lateral extent of hydrocarbon impact to groundwater has been adequately assessed downgradient and upgradient. No additional groundwater assessment is recommended downgradient of the site.
- Prepare a Corrective Action Plan after the LWQD has assigned site-specific groundwater and soil action levels.
- Continue to conduct quarterly groundwater monitoring and sampling events to monitor groundwater quality trends in the uppermost aquifer beneath the site.

## 11.0 LIMITATIONS

The findings and conclusions contained in this report have been prepared for the specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental scientific profession currently practicing under similar conditions in the area at the time this investigation was performed. No warranty, either expressed or implied, is made. This report is for the exclusive use of Susan Davey and her representatives.

A potential always remains for the presence of the unknown, unidentified, or unforeseen subsurface contamination. Further evidence against such potential site contamination would require additional subsurface exploration and testing.

If new information is discovered during future site work (which may include excavations, boreholes, or other studies), SECOR should be requested to reevaluate the conclusions of this report, and to provide amendments as required.

## 12.0 REFERENCES

California Regional Water Quality Control Board, 1994. Water Quality Control Plan, San Diego Basin (9).

County of San Diego, January 2002. Site Assessment and Mitigation Manual

County Water Authority, 1996. Map illustrating sensitive aquifer boundaries.

Kennedy, M.P. and G.L. Peterson, 1975. Geology of the San Diego Metropolitan Area, California, California Division of Mines and Geology Bulletin 200, Sacramento, California.

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U.S. Geological Survey (USGS), 1967. 7.5-Minute Series Quadrangle Topographical Map, El Cajon Quadrangle, California. Scale 1" = 2,000'. Photorevised in 1975.

## **TABLES**

- Table 1 - Soil Sample Analytical Results -- Trenching**
- Table 2 -- Summary of Soil Sample Analytical Results -- Drilling**
- Table 3 -- Summary of Groundwater Sample Analytical Results**
- Table 4 -- Summary of Soil Vapor Sample Analytical Results**
- Table 5 -- Summary of Well Gauging and Elevation Data**

**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS-TRENCHING**  
 Susan Davey Property  
 All concentrations reported in milligrams per kilograms (mg/kg).

Sample ID	Sample Depth (ft. bgs)	Date Sampled	TPHg	B	T	E	X	MTBE
SS-1	3	02/07/02	<10	<0.01	<0.01	<0.01	<0.02	<0.01
SS-2	3	02/07/02	<10	<0.01	<0.01	<0.01	<0.02	<0.01
SS-3	3	02/07/02	<10	<0.01	<0.01	<0.01	<0.02	<0.01
SS-4	3	02/07/02	<10	<0.01	<0.01	<0.01	<0.02	<0.01
SS-5	3	02/07/02	<10	<0.01	<0.01	<0.01	<0.02	<0.01
SS-6	3	02/07/02	<10	<0.01	<0.01	<0.01	<0.02	<0.01
SS-7	3	02/07/02	<10	<0.01	<0.01	<0.01	<0.02	<0.01

Notes: TPHg = Total petroleum hydrocarbons as gasoline (C<sub>6</sub>-C<sub>12</sub>)

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total xylenes

MTBE = Methyl-t-butyl ether

TRPH = Total recoverable petroleum hydrocarbons

bgs = Below ground surface

-- = Not analyzed

<# = Below laboratory detection limit

**TABLE 2**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS - DRILLING**  
 Susan Davey Property  
 All concentrations reported in milligrams per kilogram (mg/kg).

Sample ID	Sample Depth (bgs)	Date Sampled	TPHg	B	T	E	X	TAME	TBA	DIPE	ETBE	MTBE	TPRH
Previous Assessment Activities - 7/2/96-6/7/00													
B1-6	6	7/2/96	<10	<0.05	<0.05	<0.05	<0.15	--	--	--	--	--	--
B1-10.5	10.5	7/2/96	<10	0.007	<0.005	0.008	0.044	--	--	--	--	--	--
B1-15	15	7/2/96	<10	<0.05	<0.05	<0.05	<0.15	--	--	--	--	--	--
B1-18	18	7/2/96	<10	<0.05	<0.05	<0.05	<0.15	--	--	--	--	--	--
B2-6.5	6.5	7/2/96	410	0.18	<0.5	<0.5	<0.15	--	--	--	--	--	--
B2-11	11	7/2/96	10,000	29	270	120	800	--	--	--	--	--	--
B2-14.5	14.5	7/2/96	<10	<0.05	<0.05	<0.05	<0.15	--	--	--	--	--	--
B3-6.5	6.5	7/2/96	2,100	<5	<5	11	15	--	--	--	--	--	--
B3-11	11	7/2/96	2,800	<0.5	<0.5	26	68	--	--	--	--	--	6,400
B3-15	15	7/2/96	<10	<0.05	<0.05	<0.05	<0.15	--	--	--	--	--	--
B3-18	18	7/2/96	<10	<0.05	<0.05	<0.05	<0.15	--	--	--	--	--	--
MW-1/5	5	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-1/10	10	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-2/5	5	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-2/10	10	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-3/5	5	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-3/10	10	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-4/5	5	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-4/10	10	3/25/98	2,851	16.0	148	50.6	349.0	--	--	--	--	--	--
MW-4/15	15	3/25/98	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
MW-5/15	15	5/31/00	<0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	--
MW-5/20	20	5/31/00	<0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	--
MW-6/15	15	5/31/00	<0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	--
MW-6/20	20	5/31/00	<0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	--
MW-7/15	15	6/7/00	<0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	--
MW-7-20	20	6/7/00	<0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	--



**TABLE 2**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS - DRILLING**  
 Susan Davey Property  
 All concentrations reported in milligrams per kilogram (mg/kg).

Sample ID	Sample Depth (bgs)	Date Sampled	TPHg	B	T	E	X	TAME	TBA	DIPE	ETBE	MTBE	TPRH
Current Assessment Activities-03/05/02													
SB-4/5'	5	03/05/02	<0.5	<0.005	<0.005	<0.005	<0.005	--	--	--	--	<0.005	--
SB-4/10'	10	03/05/02	80	<0.1	<0.1	0.4	1.2	--	--	--	--	<0.1	--
SB-4/12'	12	03/05/02	1,400	0.9	21	20	190	--	--	--	--	<0.5	--
SB-5/5'	5	03/05/02	<0.5	<0.005	<0.005	<0.005	<0.005	--	--	--	--	<0.005	--
SB-5/10'	10	03/05/02	960	1.5	18	11	69	--	--	--	--	<0.5	--
SB-5/12'	12	03/05/02	1,800	3.9	44	22	150	--	--	--	--	<0.5	--
SB-6/5'	5	03/05/02	<0.5	<0.005	<0.005	<0.005	0.015	--	--	--	--	<0.005	--
SB-6/10'	10	03/05/02	<0.5	0.015	0.04	0.007	0.028	--	--	--	--	<0.005	--
SB-6/12'	12	03/05/02	<0.5	<0.005	<0.005	<0.005	<0.005	--	--	--	--	<0.005	--

Notes: TPHg = Total petroleum hydrocarbons as gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total xylenes

TAME = t-amyl methyl ether

TBA = t-butyl alcohol

DIPE = Diisopropyl ether

ETBE = Ethyl-t-butyl ether

MTBE = Methyl-t-butyl ether

TPRH = Total recoverable petroleum hydrocarbons

bgs = Below ground surface

-- = Not analyzed

<# = Below method reporting limit

**TABLE 3**  
**SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS**

Susan Davey Property

All concentrations reported in micrograms per liter (µg/L)

Sample ID	Date Sampled	TPHg	B	T	E	X	MTBE	TBA	DIPE	ETBE	TAME	Total Lead
B1-W	07/02/96	40,000	2,200	76	990	320	NA	NA	NA	NA	NA	NA
B2-W	07/02/96	120,000	10,000	19,000	2,600	20,000	NA	NA	NA	NA	NA	NA
B3-W	07/02/96	56,000	89	49	170	530	NA	NA	NA	NA	NA	NA
MW-1	04/01/98	260	8.9	<2.5	18.4	<5.0	17.6	NA	NA	NA	NA	NA
	05/26/99	150	<0.5	<0.5	0.7	<5.0	48	NA	NA	NA	NA	NA
	06/12/00	150	1.9	<0.5	2.2	<0.5	52	NA	NA	NA	NA	NA
	09/12/00	<500	<2	<2	<2	<6	57	<10	92	<2	<2	NA
	12/12/00	170	1.6	<0.5	5.1	<0.5	54	<0.5	81	<0.5	<0.5	NA
	02/19/02	700	39	0.6	69	0.9	78	10	46	<0.5	<0.5	NA
MW-2	04/01/98	174,000	3,940	3,620	1,500	4,310	<400	NA	NA	NA	NA	NA
	05/26/99	12,000	1,400	980	710	2,200	<20	NA	NA	NA	NA	NA
	06/12/00	7,900	1,100	340	420	1,000	<10	NA	NA	NA	NA	NA
	09/12/00	15,000	2,200	730	990	2,300	<100	<500	730	<100	<100	NA
	12/12/00	8,200	1,100	170	480	910	<50	<500	1,000	<50	<50	NA
	02/19/02	6,300	640	83	270	830	<20	<200	680	<20	<20	NA
MW-3	04/01/98	166	0.9	<0.5	<3.0	2	<0.5	NA	NA	NA	NA	NA
	05/26/99	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA
	06/12/00	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA
	07/13/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA
	09/12/00	<500	<2	<2	<2	<6	<2	<10	<2	<2	<2	NA
	12/12/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	NA	NA
	02/19/02	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	NA
MW-4	04/01/98	9,790	810	613	145	884	<25	NA	NA	NA	NA	<0.1
	05/26/99	1,600	290	160	85	280	<2.0	NA	NA	NA	NA	NA
	06/12/00	600	130	69	34	100	1.2	NA	NA	NA	NA	NA
	09/12/00	<500	12	7.3	4.1	14	<2	<10	<2	<2	<2	NA
	12/12/00	93	17	3	3.6	12	0.8	<5.0	0.6	<0.5	<0.5	NA
	02/19/02	480	59	11	19	54	0.7	<5.0	0.9	<0.5	<0.5	NA

**TABLE 3**  
**SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS**

Susan Davey Property

All concentrations reported in micrograms per liter (µg/L)

Sample ID	Date Sampled	TPHg	B	T	E	X	MTBE	TBA	DIPE	ETBE	TAME	Total Lead
MW-5	06/12/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA
	12/12/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	NA
	02/19/02	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	NA
MW-6	06/12/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA
	09/12/00	<500	<2	<2	<2	<6	<2	<10	<2	<2	<2	NA
	12/12/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	NA
MW-7	02/19/02	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	NA
	06/12/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA
	09/12/00	<500	<2	<2	<2	<6	<2	<10	<2	<2	<2	NA
	12/12/00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	NA
	02/19/02	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	NA

Notes: TPHg = Total petroleum hydrocarbons as gasoline

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total xylenes

TAME = tert-amy/ methyl ether

TBA = tert-butyl alcohol

DIPE = Diisopropyl ether

ETBE = Ethyl tert-butyl ether

MTBE = Methyl-t-butyl ether

<# = Below laboratory detection limit

NS = Not sampled

Shaded row represents the most recent groundwater sampling event.

**TABLE 4**  
**SUMMARY OF SOIL VAPOR SAMPLE ANALYTICAL RESULTS**

Susan Davey Property

All concentrations reported in micrograms per liter (µg/L)

Sample ID	Date	Sample Depth (Ft bgs)	Benzene	Toluene	Ethylbenzene	Total Xylenes
<b>Previous Assessment Activities - 04/19/99</b>						
VP1-2	4/19/99	2	<0.1	<0.1	<0.1	<0.1
VP1-5	4/19/99	5	4.2	0.9	<0.1	<0.1
VP2-2	4/19/99	2	1,079	545	31	99
VP2-5	4/19/99	5	750	102	27	96
VP3-2	4/19/99	2	0.39	<0.1	<0.1	<0.1
VP3-5	4/19/99	5	54	18	<0.1	<0.1
VP4-2	4/19/99	2	3.2	8.3	1.5	4.0
VP4-5	4/19/99	5	2.8	7.3	1.7	2.5
VP5-2	4/19/99	2	<0.1	<0.1	<0.1	<0.1
VP5-5	4/19/99	5	<0.1	<0.1	<0.1	<0.1
VP6-2	4/19/99	2	<0.1	<0.1	<0.1	<0.1
VP6-5	4/19/99	5	<0.1	<0.1	<0.1	<0.1
VP7-2	4/19/99	2	<0.1	<0.1	<0.1	<0.1
VP7-5	4/19/99	5	<0.1	<0.1	<0.1	<0.1
<b>Current Assessment Activities - 1/22/02</b>						
VP8-2	01/22/02	2	<0.1	<0.1	<0.1	1.8
VP8-5	01/22/02	5	<0.1	<0.1	<0.1	<0.1
VP9-2	01/22/02	2	<0.1	<0.1	<0.1	<0.1
VP9-5	01/22/02	5	<0.1	<0.1	<0.1	<0.1
VP10-2	01/22/02	2	18	<0.1	1.7	1.9
VP10-5	01/22/02	5	75	1.3	3.9	2.1
VP11-2	01/22/02	2	9	1.4	<0.1	1.6
VP11-5	01/22/02	5	4.1	4.1	1.2	4.6
VP12-2	01/22/02	2	<0.1	2.4	<0.1	2.5
VP12-5	01/22/02	5	<0.1	2.2	<0.1	2.1
VP13-2	01/22/02	2	<0.1	2.3	<0.1	2.1
VP13-5	01/22/02	5	<0.1	1.8	<0.1	1.9

Notes: VP8-2 = Vapor point sample identification  
 Ft bgs = Feet below ground surface  
 µg/L = micrograms per liter

**TABLE 5**  
**SUMMARY OF WELL GAUGING AND ELEVATION DATA**  
Susan Davey Property

Well No.	Date	SWE	DTW (feet bgs)	LPH Thickness (feet)	GWE (feet)
MW-1	04/01/98	479.42	7.75	0	471.67
	05/26/99	479.42	9.32	0	470.10
	06/12/00	479.42	9.50	0	469.92
	09/12/00	479.42	9.75	0	469.67
	12/12/00	479.42	9.84	0	469.58
	02/19/02	479.42	9.80	0	469.62
MW-2	04/01/98	480.00	8.77	0	471.23
	05/26/99	480.00	10.36	0	469.64
	06/12/00	480.00	10.55	0	469.45
	09/12/00	480.00	10.83	0	469.17
	12/12/00	480.00	10.99	0	469.01
	02/19/02	480.00	10.92	0	469.08
MW-3	04/01/98	478.35	6.76	0	471.59
	05/26/99	478.35	8.16	0	470.19
	06/12/00	478.35	NM	0	NC
	09/12/00	478.35	8.61	0	469.74
	12/12/00	478.35	9.93	0	468.67
	02/19/02	478.35	8.70	0	469.65
MW-4	04/01/98	478.60	7.66	0	470.94
	05/26/99	478.60	9.30	0	469.30
	06/12/00	478.60	9.49	0	469.11
	09/12/00	478.60	9.80	0	468.80
	12/12/00	478.60	9.93	0	468.67
	02/19/02	478.60	9.88	0	468.72
MW-5	06/12/00	478.71	10.37	0	468.34
	02/19/02	478.71	10.81	0	467.90
MW-6	06/12/00	478.93	8.30	0	470.63
	09/12/00	478.93	8.56	0	470.37
	12/12/00	478.93	8.69	0	470.24
	02/19/02	478.93	8.66	0	470.27

**TABLE 5**  
**SUMMARY OF WELL GAUGING AND ELEVATION DATA**  
 Susan Davey Property

Well No.	Date	SWE	DTW (feet bgs)	LPH Thickness (feet)	GWE (feet)
MW-7	06/12/00	479.04	10.25	0	468.79
	09/12/00	479.04	10.57	0	468.47
	12/12/00	479.04	10.72	0	468.32
	02/19/02	479.04	10.70	0	468.34

Notes:

GWE = Groundwater elevation, in feet above mean sea level (AMSL)

SWE = Surveyed well elevation, in feet AMSL, surveyed relative to a City of El Cajon benchmark.

DTW = Depth to water, in feet below top of well casing

LPH = Liquid-phase hydrocarbons

Shaded row represents most recent groundwater sampling event.

## **FIGURES**

**Figure 1 - Site Location Map**

**Figure 2 - Site Plan with Cross-Section Lines**

**Figure 3 - Site Plan with Former Service Station**

**Figure 4 - Hydrocarbon Concentrations in Soil - Trenching**

**Figure 5 - Hydrocarbon Concentrations in Soil -- Drilling**

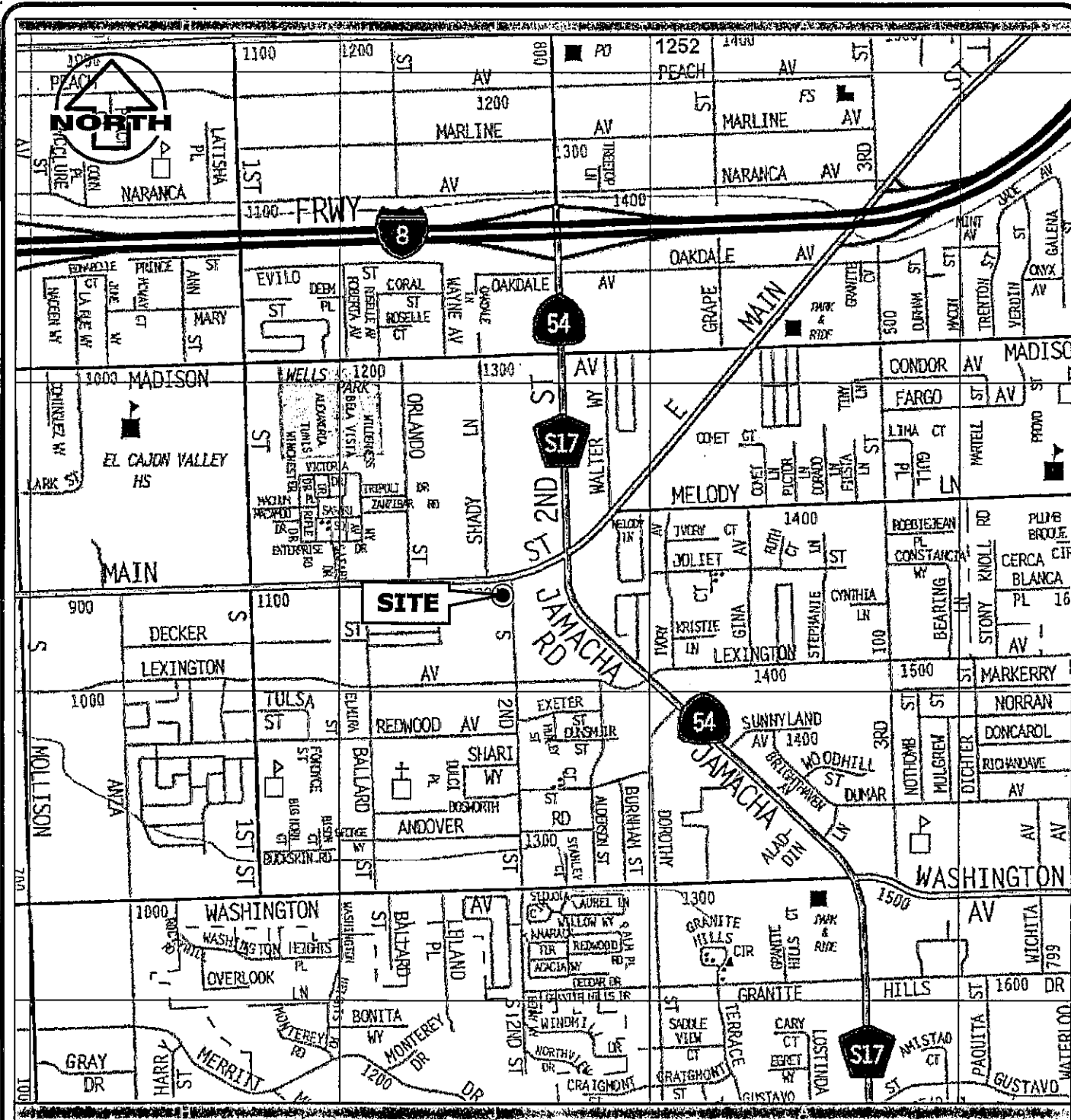
**Figure 6 - Cross-Section A-A'**

**Figure 7 - Cross-Section B-B'**

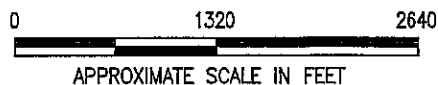
**Figure 8 - Cross-Section C-C'**

**Figure 9 - Groundwater Elevation Contour Map [for February 19, 2001]**

**Figure 10 - Hydrocarbon Concentrations in Groundwater  
[for February 19, 2001]**



REFERENCE: THOMAS GUIDE CD-ROM, PAGE & GRID 1251 J5.



**SECOR**

International Incorporated  
2655 CAMINO DEL RIO N., SUITE 302  
SAN DIEGO, CA 92108

\\Allprojects2002dwsa\General\Daveyprop\Daveysloc.dwg

PROJECT: 080T.04926.00 DATE: 4/16/02

NOTES:

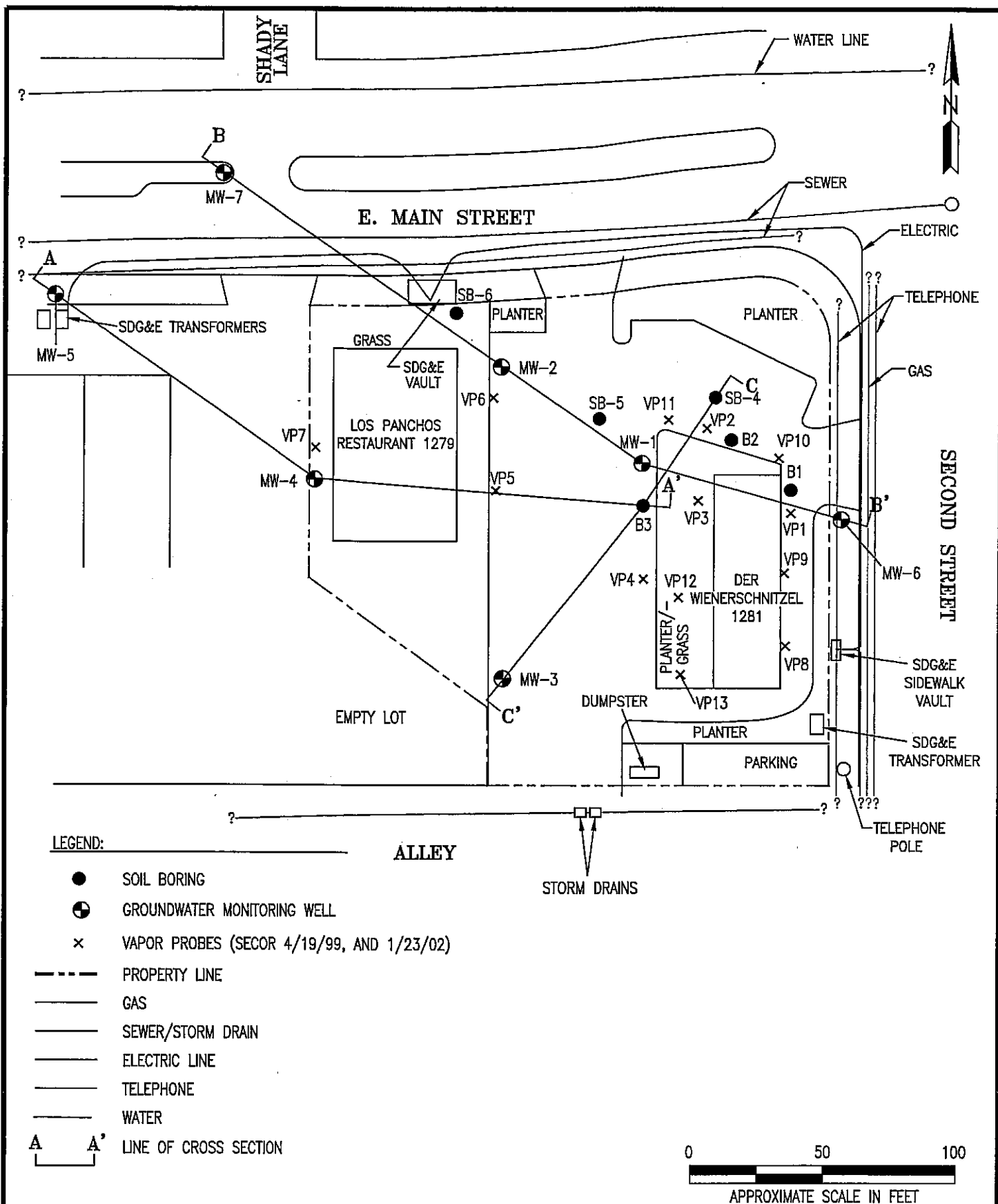
FIGURE 1

**SITE LOCATION MAP**

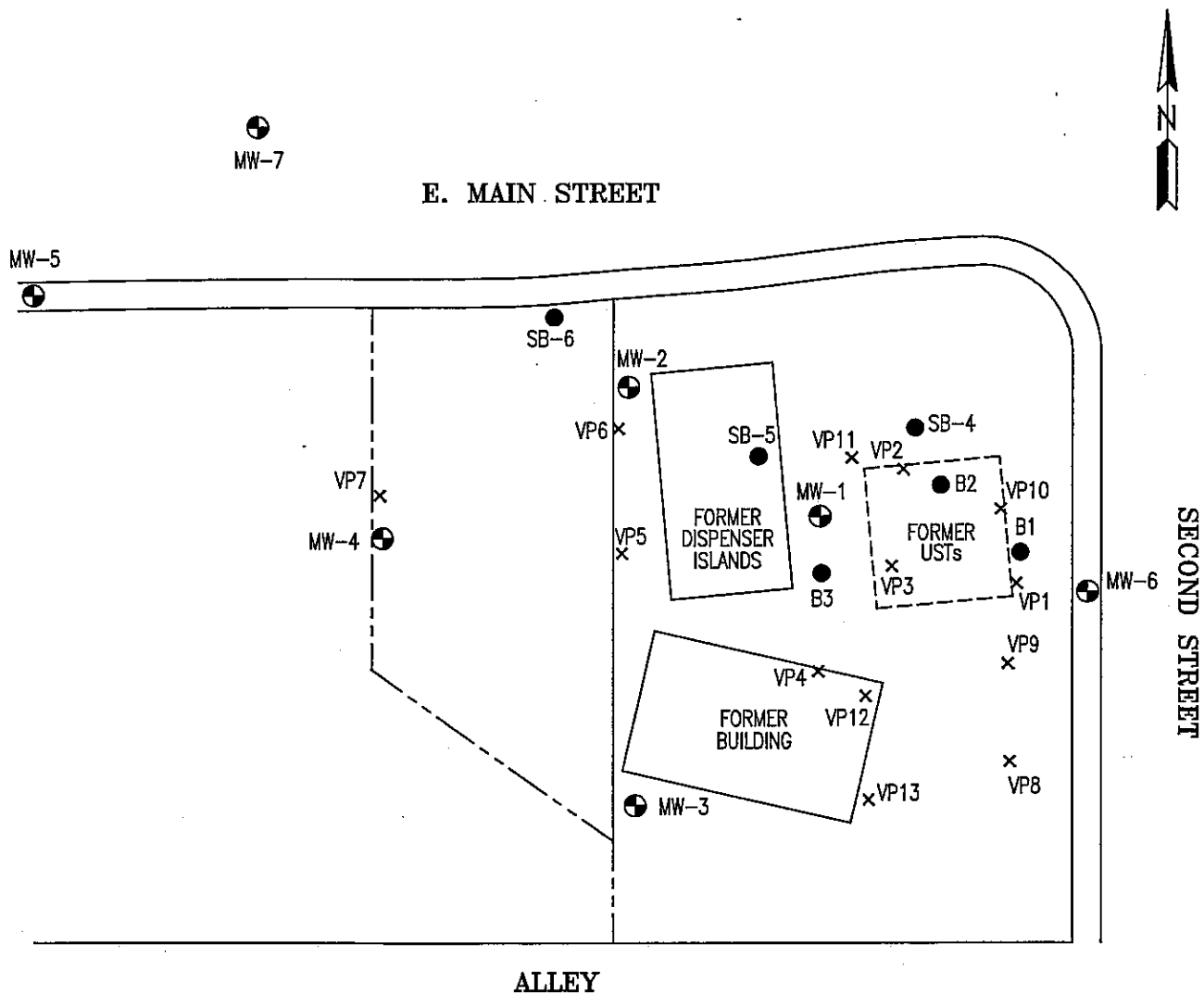
**SUSAN DAVEY PROPERTY**

1279 & 1281 E. MAIN STREET  
EL CAJON, CALIFORNIA





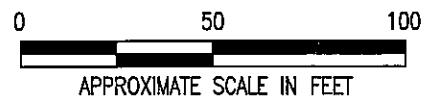
<p><b>SECOR</b> INTERNATIONAL INCORPORATED 2655 CAMINO DEL RIO N., SUITE 302 SAN DIEGO, CA. 92108 DAVEYSP.DWG 4/26/02</p>	<p><b>SITE PLAN WITH CROSS-SECTION LINES</b> SUSAN DAVEY PROPERTY 1279 &amp; 1281 E. MAIN STREET EL CAJON, CA.</p>	<p>PROJECT No.: <b>080T.04926.00</b> FIGURE: 2</p>
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**LEGEND:**

- SOIL BORING
- ⊕ GROUNDWATER MONITORING WELL
- x VAPOR PROBES (SECOR 4/19/99, AND 1/23/02)
- PROPERTY LINE
- UST UNDERGROUND STORAGE TANK

NOTE: FORMER BUILDING, DISPENSER ISLANDS AND UST LOCATIONS ARE APPROXIMATE BASED ON A 1973 AERIAL PHOTOGRAPH



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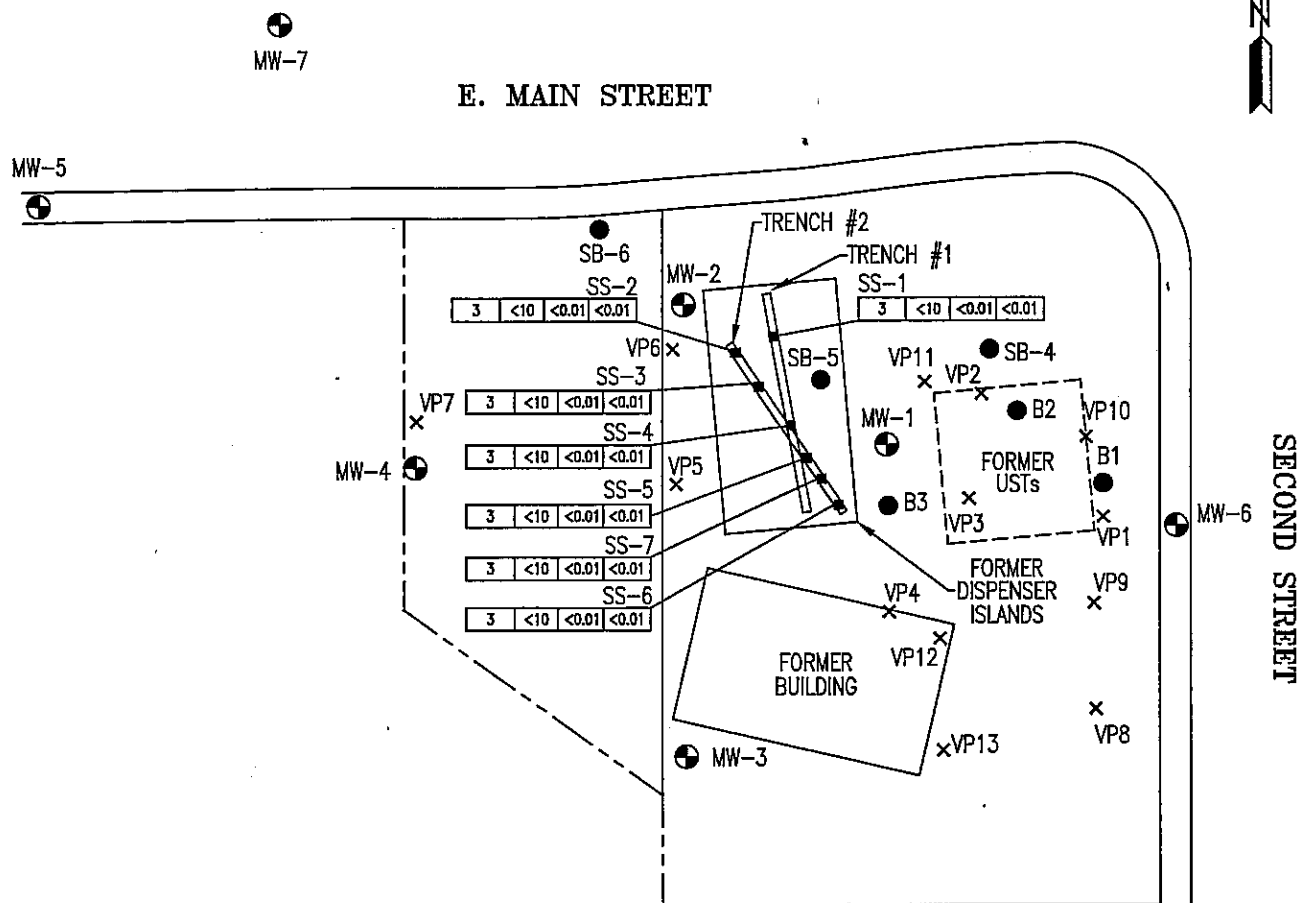
DAVEYSPC.DWG

4/26/02

**SITE PLAN WITH FORMER  
SERVICE STATION**  
SUSAN DAVEY PROPERTY  
1279 & 1281 E. MAIN STREET  
EL CAJON, CA.

PROJECT No.:  
**080T.04926.00**

FIGURE: 3



**SECOR**

INTERNATIONAL INCORPORATED  
 2655 CAMINO DEL RIO N., SUITE 302  
 SAN DIEGO, CA. 92108

**HYDROCARBON CONCENTRATIONS  
 IN SOIL - TRENCHING**

SUSAN DAVEY PROPERTY  
 1279 & 1281 E. MAIN STREET  
 EL CAJON, CA.

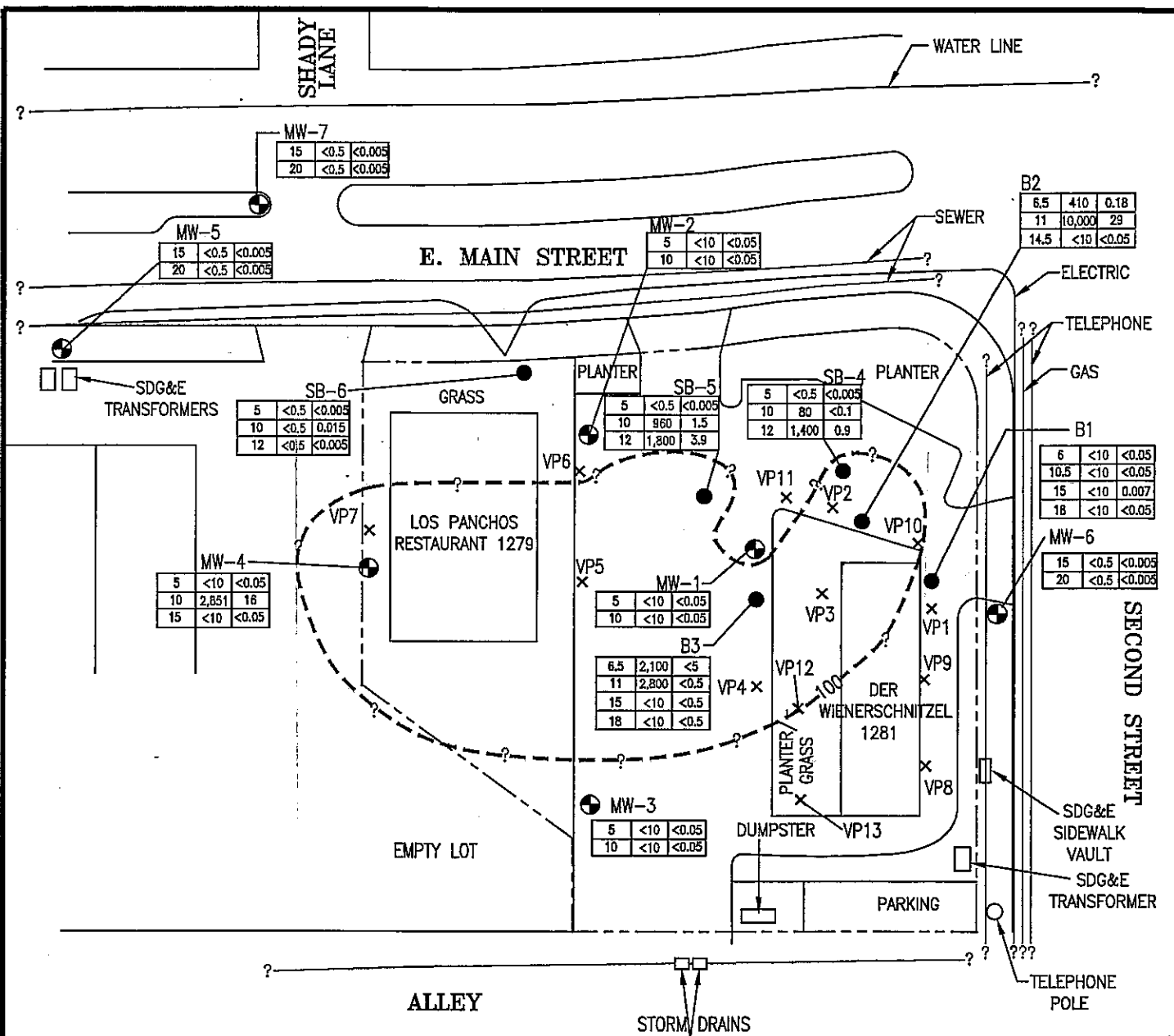
PROJECT No.:

080T.04926.00

FIGURE: 4

DAVEYHCT.DWG

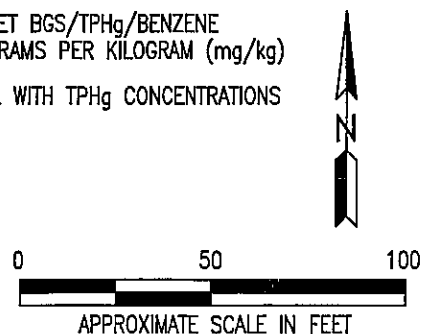
5/14/02



**LEGEND:**

- SOIL BORING
- ⊕ GROUNDWATER MONITORING WELL
- × VAPOR PROBES (SECOR 4/19/99, AND 1/23/02)
- PROPERTY LINE
- GAS
- SEWER
- ELECTRIC LINE
- TELEPHONE
- TPHg TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- BGS BELOW GROUND SURFACE
- |     |       |    |
|-----|-------|----|
| 6.5 | 2,100 | <5 |
|-----|-------|----|

 SOIL SAMPLE DEPTH IN FEET BGS/TPHg/BENZENE CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)
- ESTIMATED EXTENT OF SOIL WITH TPHg CONCENTRATIONS >100 mg/kg.



**SECOR**

INTERNATIONAL INCORPORATED  
2655 CAMINO DEL RIO N., SUITE 302  
SAN DIEGO, CA. 92108

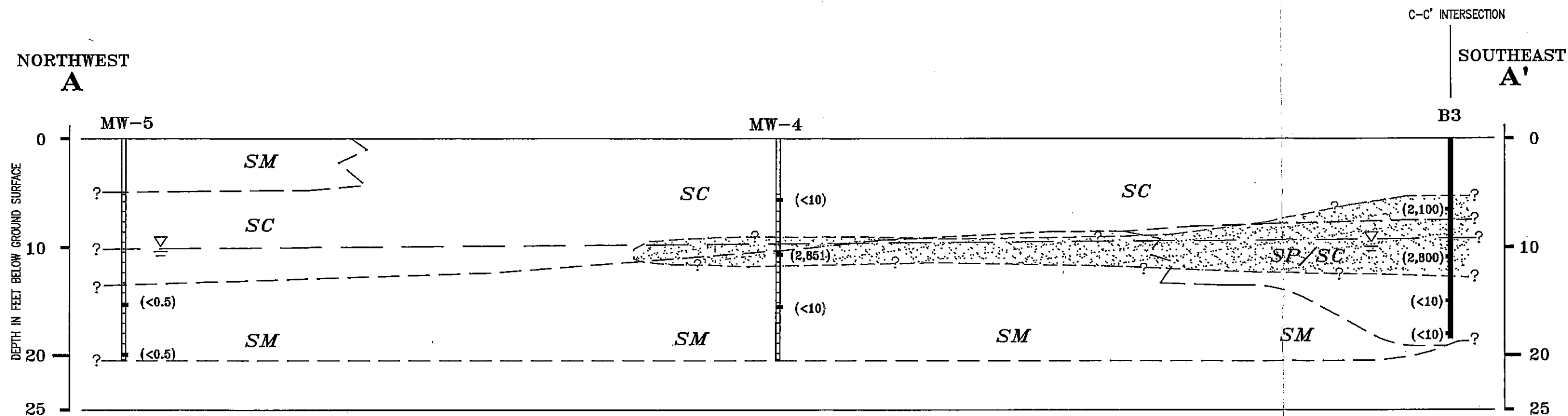
**HYDROCARBON CONCENTRATIONS  
IN SOIL - DRILLING**

SUSAN DAVEY PROPERTY  
1279 & 1281 E. MAIN STREET  
EL CAJON, CA.

PROJECT No.:

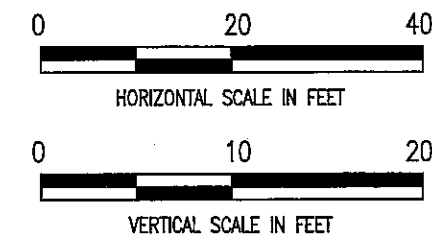
**080T.04926.00**

**FIGURE: 5**



**LEGEND:**

- SOIL SAMPLE LOCATION
- (2,851) TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPHg), CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)
- ▽ STATIC GROUNDWATER LEVEL
- ND NOT DETECTED
- MONITORING WELL
- BLANK
- SCREENED INTERVAL
- TPHg CONCENTRATIONS >100 mg/kg IN SOIL
- SM SILTY SAND
- SC CLAYEY SAND
- SP POORLY GRADED SAND
- SP/SC POORLY GRADED SAND WITH CLAY



**SECOR**

INTERNATIONAL INCORPORATED  
2655 CAMINO DEL RIO N., SUITE 302  
SAN DIEGO, CA. 92108

**GEOLOGIC CROSS SECTION A-A'**

SUSAN DAVEY PROPERTY  
1279 & 1281 E. MAIN STREET  
EL CAJON, CALIFORNIA

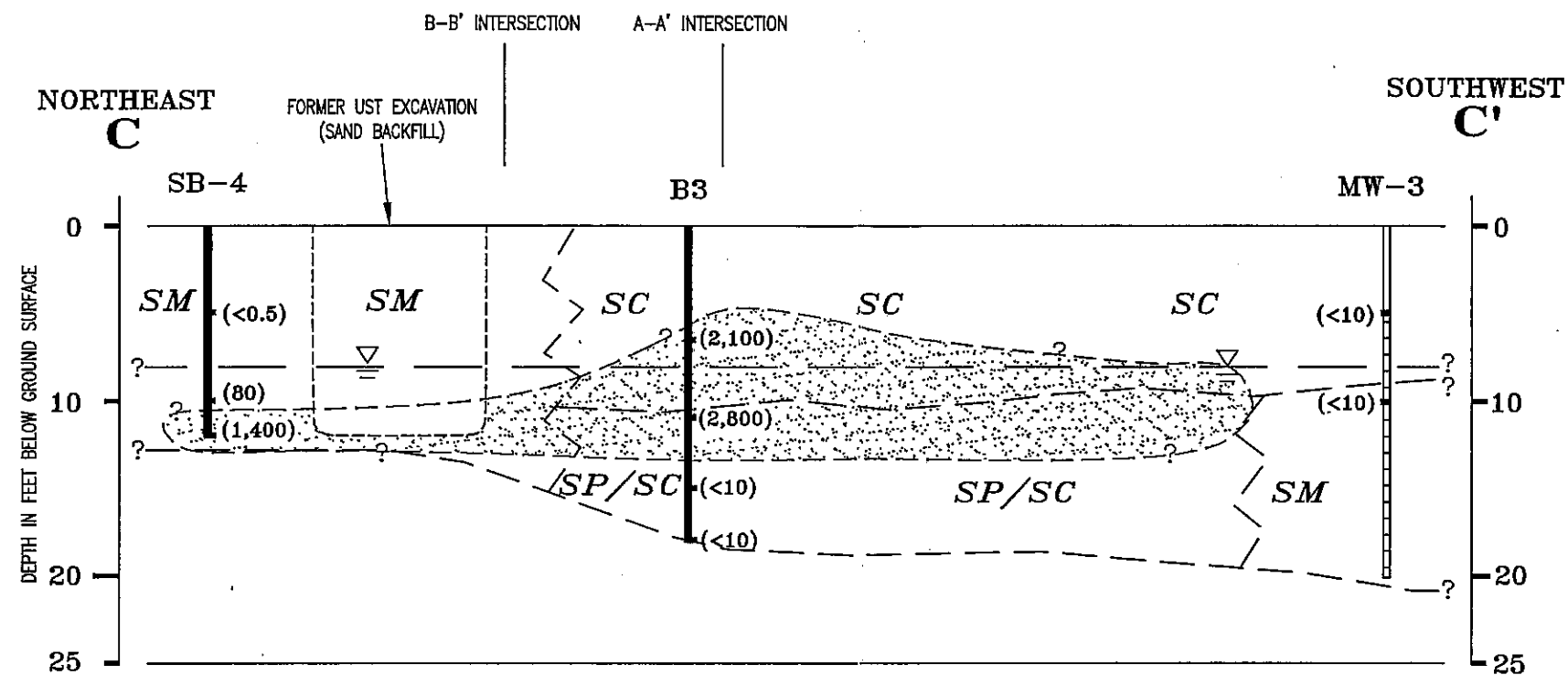
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PROJECT No.:  
**080T.04926.00**

DATE: 4/26/02

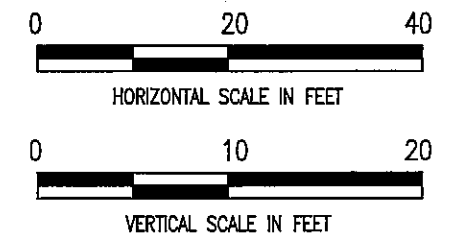
FIGURE: 6





# LEGEND:

- SOIL SAMPLE LOCATION
- (2,100) TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPHg), CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)
- ▽ STATIC GROUNDWATER LEVEL
- ND NOT DETECTED
- UST UNDERGROUND STORAGE TANK
- MONITORING WELL
- BLANK
- SCREENED INTERVAL
- TPHg CONCENTRATIONS >100 mg/kg IN SOIL
- SM SILTY SAND
- SC CLAYEY SAND
- SP POORLY GRADED SAND
- SP/SC POORLY GRADED SAND WITH CLAY



**SECOR**  
INTERNATIONAL INCORPORATED  
2655 CAMINO DEL RIO N., SUITE 302  
SAN DIEGO, CA. 92108

**GEOLOGIC CROSS SECTION C-C'**  
SUSAN DAVEY PROPERTY  
1279 & 1281 E. MAIN STREET  
EL CAJON, CALIFORNIA

CAD FILE NO.: X-SECcc

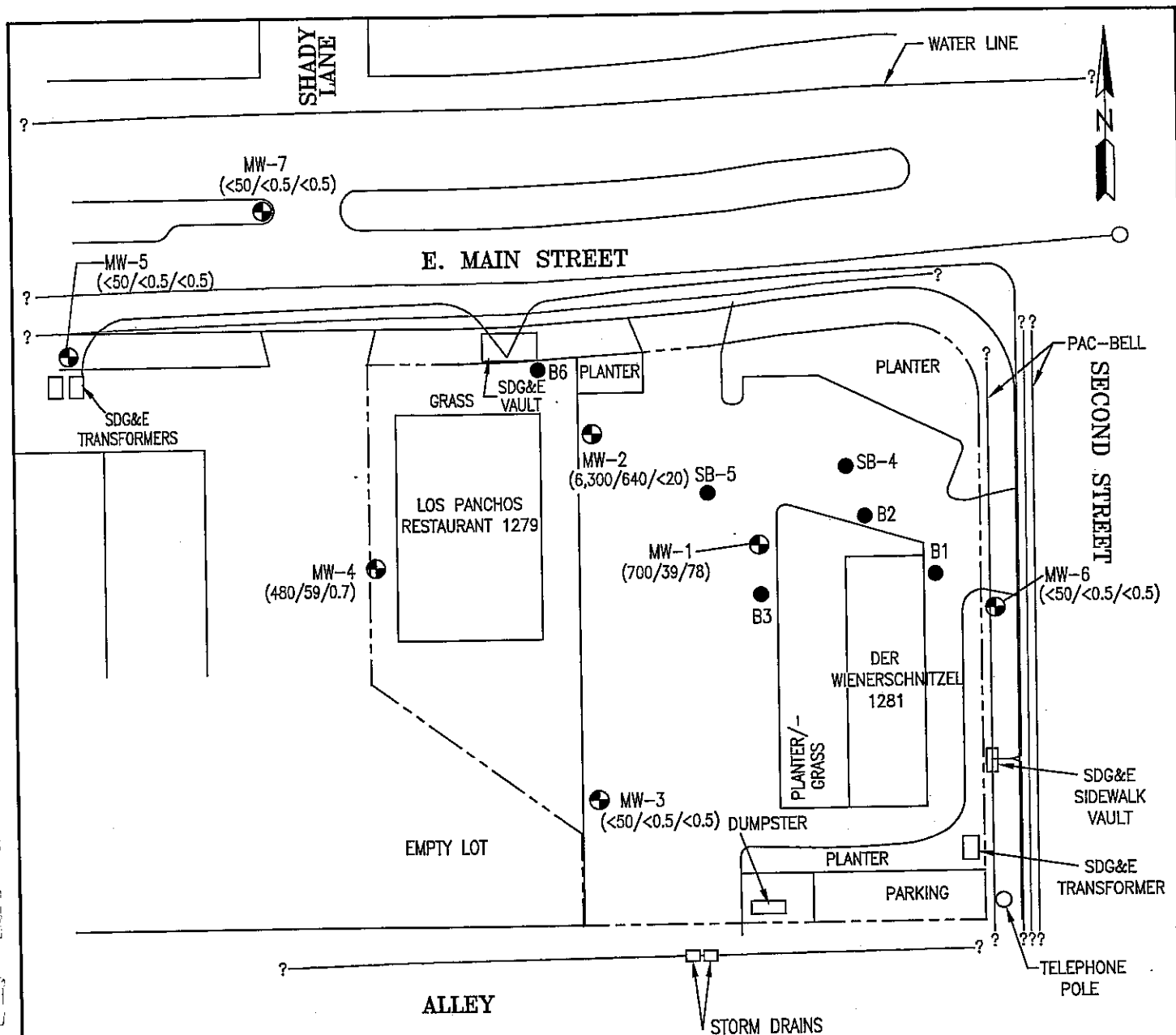
PROJECT No.:  
**080T.04926.00**

DATE: 4/16/02

FIGURE: 8







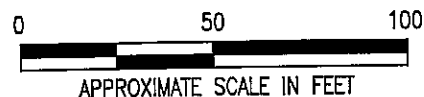
**LEGEND:**

- SOIL BORING
- ⊙ GROUNDWATER MONITORING WELL
- PROPERTY LINE
- GAS
- SEWER/STORM DRAIN
- ELECTRIC LINE
- TELEPHONE
- WATER

( $<50/<0.5/<0.5$ )

TOTAL PETROLEUM HYDROCARBONS AS GASOLINE /  
BENZENE / METHYL-T-BUTYL ETHER CONCENTRATIONS  
IN MICROGRAMS PER LITER ( $\mu\text{g/L}$ )

WELLS SAMPLED ON FEBRUARY 19, 2002



**SECOR**

INTERNATIONAL INCORPORATED  
2655 CAMINO DEL RIO N., SUITE 302  
SAN DIEGO, CA. 92108

HYDROCARBON CONCENTRATIONS IN GROUNDWATER  
SUSAN DAVEY PROPERTY  
1279 & 1281 E. MAIN STREET  
EL CAJON, CA.

PROJECT No.:

080T.04926.00

FIGURE: 10

## **APPENDICES**

**Appendix A – Soil Vapor Laboratory Report and  
Chain-of-Custody Documentation**

**Appendix B – Soil Vapor Risk Calculations**

**Appendix C – Drilling Permit Cover Sheet**

**Appendix D – Methods and Procedures**

**Appendix E – Borehole Logs and Legend**

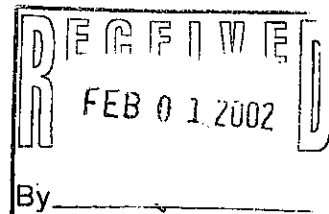
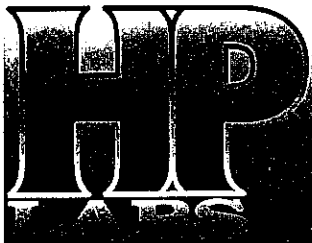
**Appendix F – Monitoring Well Gauging Log; Well Purging/  
Sampling Logs; and Survey Elevation Report**

**Appendix G – Waste Disposal Documentation**

**Appendix H – Subsurface Soil and Groundwater Laboratory  
Reports and Chain-of-Custody Documentation**

**APPENDIX A**

**SOIL VAPOR LABORATORY REPORT  
CHAIN-OF-CUSTODY DOCUMENTATION**



1/30/2002

SECOR  
2655 Camino Del Rio North, Suite 302  
San Diego, CA 92108

Project Name: 1279-1281 E. Main Street, El Cajon  
Project No.: PO# 0804926 Susan Davy Property

Attention: Mr. Brain Demme

The following sample(s) were received and analyzed:

<u>Date Received</u>	<u>Quantity</u>	<u>Matrix</u>
1/22/02	12	Vapor

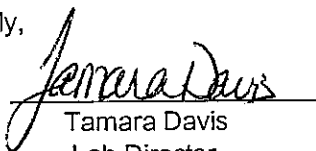
The samples were analyzed by one or more of the EPA methodologies or equivalent methods listed below.

VOCs -- EPA Method 8260

The results are included with a summary of the quality control procedures. Please note that the symbol "nd" indicates a value below the reporting limit for the particular compound in the sample.

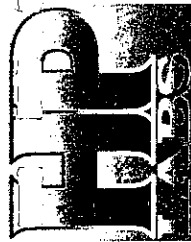
Please feel free to call us to discuss any part of this report or to schedule future projects.

Sincerely,

  
Tamara Davis  
Lab Director

Mobile One Laboratories is certified by the California Department of Health Services (certificate #s: 1194, 1561, 1921, 2088, 2278).

HP Labs Project # SE012202-L5



# Report Summary

EPA Method 8260B ( 5030 Prep.)

Client: SECOR  
Project: 1279-1281 E. Main Street, El Cajon

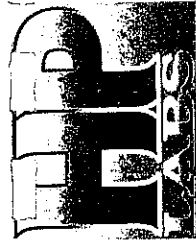
Sample Name: BLANK  
Analysis Date: 22 Jan 2002  
Analysis Time: 6:04 am  
Dilution Factor: 0.1  
Purge Volume(cc): n/a

Compound	E.Q.L	Amount Found	VP8-2	VP8-5	VP9-2	VP9-5	VP10-2
		Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Benzene	1	nd	nd	nd	nd	nd	18
Toluene	1	nd	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	1.7
m,p-Xylene	1	nd	1.8	nd	nd	nd	1.9
o-Xylene	1	nd	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery
DBFM	50 ng	75-125	107
1,2-DCA-d4	50 ng	70-130	107
Toluene - d8	50 ng	75-125	95
1,4-BFB	50 ng	75-125	79

Analyses performed by: Jim Cook

SE012202-L5



Report Summary

EPA Method 8260B ( 5030 Prep.)

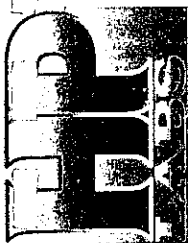
Client: SECOR  
Project: 1279-1281 E. Main Street, El Cajon

Sample Name: VP10-5 VP11-2 VP11-5 VP12-2 VP12-5 VP13-2  
Analysis Date: 22 Jan 2002 22 Jan 2002 22 Jan 2002 22 Jan 2002 22 Jan 2002 22 Jan 2002  
Analysis Time: 10:45 am 11:09 am 11:34 am 12:24 pm 12:50 pm 1:15 pm  
Dilution Factor: 0.1 0.2 0.1 0.05 0.05 0.05  
Purge Volume(cc): 30 30 30 30 30 30  
Matrix: Vapor  
Units: ug/L

Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Benzene	1	75	9.0	4.1	nd	nd	nd
Toluene	1	1.3	1.4	4.1	2.4	2.2	2.3
Ethylbenzene	1	3.9	nd	1.2	nd	nd	nd
m,p-Xylene	1	2.1	1.6	4.6	2.5	2.1	2.1
o-Xylene	1	nd	nd	nd	nd	nd	nd
Surrogates	QC Limits(% Rec.)						
DBFM	50 ng 75-125	84	92	84	99	99	97
1,2-DCA-d4	50 ng 70-130	102	101	100	89	88	91
Toluene - d8	50 ng 75-125	114	105	108	98	98	97
1,4-BFB	50 ng 75-125	81	83	86	88	86	86

Analyses performed by: Jim Cook

SE012202-L5



Matrix: Vapor  
Units: ug/L

Client: SECOR  
Project: 1279-1281 E. Main Street, El Cajon

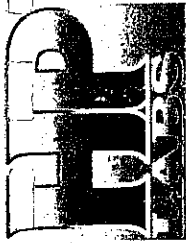
Sample Name: VP13-5  
Analysis Date: 22 Jan 2002  
Analysis Time: 1:39 pm  
Dilution Factor: 0.1 0.05  
Purge Volume(cc): 30  
Compound E.Q.L Amount Found

Benzene	1	nd
Toluene	1	1.8
Ethylbenzene	1	nd
m,p-Xylene	1	1.9
o-Xylene	1	nd

<u>Surrogates</u>	<u>Spiked</u>	<u>QC Limits(% Rec.)</u>	<u>Percent Recovery</u>
DBFM	50 ng	75-125	100
1,2-DCA-d4	50 ng	70-130	92
Toluene - d8	50 ng	75-125	96
1,4-BFB	50 ng	75-125	87

Analyses performed by: Jim Cook

SE012202-L5



# Calibration Verification

EPA Method 8260B

Client: SECOR  
Project: 1279-1281 E. Main Street, El Cajon

Matrix: vapor  
Units: ug/L

Sample Name: CCV  
Analysis Date: 22 Jan 2002  
Analysis Time: 5:40 am  
Dilution Factor: 1

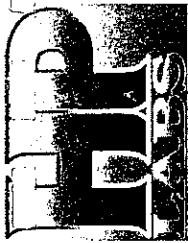
CCC  
(-20 to +20%)  
Pass

EPA 8260  
(-20 to +20%)  
Pass

Compound Amount Found Percent Diff

Dichlorodifluoromethane	47	-6	yes
Chloromethane	51	1	yes
Vinyl Chloride	57	14	yes
Bromomethane	62	24	no
Chloroethane	49	-2	yes
Trichlorofluoromethane	48	-5	yes
1,1-Dichloroethene	47	-6	yes
Methylene Chloride	51	2	yes
Methyl-t-butylether	37	-25	no
trans-1,2-Dichloroethene	51	1	yes
1,1-Dichloroethane	54	7	yes
2,2-Dichloropropane	55	10	yes
cis-1,2-Dichloroethene	48	-4	yes
Chloroform	53	7	yes
Bromochloromethane	47	-7	yes
1,1,1-Trichloroethane	54	7	yes
1,1-Dichloropropene	47	-6	yes
Carbon Tetrachloride	51	1	yes
1,2-Dichloroethane	50	1	yes
Benzene	54	8	yes
Trichloroethene	47	-6	yes
1,2-Dichloropropane	47	-7	yes
Bromodichloromethane	50	-1	yes
Dibromomethane	45	-9	yes
cis-1,3-Dichloropropene	37	-25	no
Toluene	49	-2	yes
trans-1,3-Dichloropropene	39	-22	no
1,1,2-Trichloroethane	43	-14	yes
1,2-Dibromoethane	38	-24	no
1,3-Dichloropropane	43	-14	yes





Calibration Verification

EPA Method 8260B

Client: SECOR  
Project: 1279-1281 E. Main Street, El Cajon

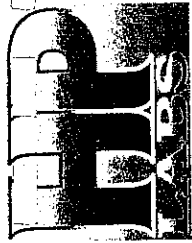
Matrix: vapor  
Units: ug/L

EPA 8260

(-20 to +20%)

Sample Name:		CCV		Pass
Compound	Amount Found	Percent Diff		
Tetrachloroethene	48	-4		yes
Dibromochloromethane	44	-12		yes
Chlorobenzene	50	0		yes
Ethylbenzene	50	0		yes
1,1,1,2-Tetrachloroethane	53	5		yes
m,p-Xylene	100	0		yes
o-Xylene	50	0		yes
Styrene	47	-6		yes
Bromoform	42	-17		yes
Isopropylbenzene	48	-5		yes
1,1,2,2-Tetrachloroethane	41	-19		yes
1,2,3-Trichloropropane	39	-23		no
n-propylbenzene	49	-3		yes
Bromobenzene	45	-11		yes
1,3,5-Trimethylbenzene	47	-6		yes
2-Chlorotoluene	50	0		yes
4-Chlorotoluene	47	-6		yes
tert-Butylbenzene	45	-10		yes
1,2,4-Trimethylbenzene	49	-3		yes
sec-Butylbenzene	48	-4		yes
p-Isopropyltoluene	48	-4		yes
1,3-Dichlorobenzene	47	-6		yes
1,4-Dichlorobenzene	46	-7		yes
n-Butylbenzene	48	-3		yes
1,2-Dichlorobenzene	44	-13		yes
1,2-Dibromo-3-chloropropane	34	-32		no
1,2,4-Trichlorobenzene	42	-15		yes
Hexachlorobutadiene	43	-15		yes
Naphthalene	33	-35		no
1,2,3-Trichlorobenzene	41	-19		yes
Surrogates	Spiked	QC Limits(% Rec.)	SUMMATION	
DBFM	50 ng	75-125	CCC compounds pass the 8260B criteria	
1,2-DCA-d4	50 ng	70-130		
Toluene - d8	50 ng	75-125		
1,4-BFB	50 ng	75-125		
				CALIBRATION VERIFIED

CALIBRATION VERIFIED



## Footnote Summary

<u>Footnote</u>	<u>Definition</u>
E.Q.L. nd J	Estimated Quantitation Limit Not detected above the E.Q.L. or detection limit. The concentration reported is between the Method Detection Limit and the E.Q.L.
D	Concentration reported from a secondary dilution; E.Q.L.s adjusted accordingly.
B E	Analyte found in the associated blank. Analyte amount exceeds calibration range. Amount quantitated by extrapolation.
***	MS/MSD, LCS/LCSD recovery is outside QC range; no corrective action taken.
M S	Surrogate recovery outside QC range due to matrix interference. Because of necessary sample dilution, value was outside QC limits.
& #	Gasoline range organics not identified as gasoline. Diesel range organics not identified as diesel.
**	This compound has been screened by EPA method 8020. Any positive results should be confirmed by a second analysis.

# Chain of Custody Record

Date: JANUARY 27, 2002

148 S. Vinewood St., Escondido, CA 92029 • ph 760.735.3208 • fax 760.735.2469

432 N. Cedros Ave., Solana Beach, CA 92075 • ph 858.793.0401 • fax 858.793.0404

2373 208th Street Unit F-1, Torrance, CA 90501 • ph 310.782.2929 • fax 310.782.2798

Client: SECOR

Collector: DAVE DALGENIUSH

Page: \_\_\_\_\_ Of \_\_\_\_\_

Address: 2655 CAMINO DEL RIO NORTH, SUITE 302

Client Project # PO#0804726

Project Manager  
BRYAN DEMME

San Diego, CA 92103

Location: 1279-1231 East

MAIN STREET E. CAYON

Phone: 619-296-6195 Fax: 619-296-6197

Fax: 66619-962-6107

Turn around time:

Notes:

[illegible]

**Relinquished by: (Signature)**

(company)

Received by: (Signature)

	(company)
--	-----------

Time: \_\_\_\_\_

Relinquished by: (Signature)

(company)

Received by: (Signature)

(continued)

Time: \_\_\_\_\_

Relinquished by: (Signature)

(company)

Received by: (Signature)

(company)

Time:

**\*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.**

**Sample disposal instruction:**

☐ Disposal @ \$2.00 each

☐ Return to client

Pickup	
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## **APPENDIX B**

### **SOIL VAPOR RISK CALCULATIONS**

# SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL

Page 1-2

Input Data

Version: November 1999

Revised 01-08-2002

Case Name:

Davey Property - Typical Commercial Building

## CHEMICAL OF CONCERN:

Enter Chemical Name =

benzene

C11 benzene

C12 benzo(a)pyrene

C13 carbon tetrachloride

C14 chlorobenzene

C15 chloroethane (ethyl chloride)

C16 chloromethane (methyl chloride)

C17 1,2-dichlorobenzene

C18 1,3-dichlorobenzene

C19 1,4-dichlorobenzene

C20 1,1-dichloroethene (1,1-DCE)

C21 trans-1,2-dichloroethene

C22 1,1-dichloroethane (1,1-DCA)

C23 1,2-dichloroethane (1,2-DCA)

E11 dichloromethane (methylene chloride)

E12 ethylbenzene

E13 naphthalene

E14 methyl tertiary butyl ether (MTBE)

E15 tetrachloroethene (PCE)

E16 toluene

E17 1,1,1-trichloroethane

E18 1,1,2-trichloroethane

E19 trichloroethene (TCE)

E20 trichloromethane (chloroform)

E21 vinyl chloride

E22 xylene

Chemical Mixture (if app.) =

C27 Gasoline

C28 Kerosene

C29 Diesel

E27 Fuel Oil

E28 Waste Oil

If compound is not listed then data must be entered into the site-specific field.

SITE SPECIFIC INFORMATION			Site-Specific	Value Used
Mole fraction	dimensionless	MF		0.0000
Temperature	K	T		293
Water concentration (chemical)	ug/l	C <sub>w</sub>		0
Soil concentration (chemical)	mg/kg	C <sub>t</sub>		0
Soil concentration (TPH/TRPH)	mg/kg	C <sub>t</sub>		0
Soil gas concentration (measured)	mg/m3 (ug/l)	C <sub>sg</sub> (m)	1.06	1.06
Depth of contamination or Soil Gas	m	X	0.61	0.61

# SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL

Page 2-2

## Data Input

Version: November 1999

Revised 12/20/2000

<b>CHEMICAL PROPERTIES</b>			<b>Site Specific</b>	<b>Value Used</b>
Henry's Law Constant	dimensionless	H		0.23
Vapor pressure	atm	VP		0.13
Molecular weight (chemical)	mg/mole	MW		78,110
Molecular weight (mixture)	mg/mole	MW(m)		#N/A
Universal gas constant	atm-m3/mole-K	R	XXXXXXXXXX	8.20E-05
Diffusion coefficient in air	cm2/sec	D <sub>a</sub>		0.088
Organic carbon partitioning coef.	cm3/gm	K <sub>oc</sub>		62
<b>SOIL PROPERTIES</b>				
Total porosity	dimensionless	θ		0.3
Air-filled porosity	dimensionless	θ <sub>a</sub>		0.2
Water-filled porosity	dimensionless	θ <sub>w</sub>	XXXXXXXXXX	0.1
Bulk density (dry)	gm/cc	r <sub>b</sub>		1.8
Weight fraction of organic carbon	dimensionless	foc		0.01
<b>BUILDING SPECIFICATIONS</b>				
Floor area of building	m2	A		1
% of floor area that flux occurs	dimensionless			100%
Interior Height of building	m	R <sub>h</sub>		2.44
Exchange rate of air	exchanges/hr	E		0.83
Attenuation factor(Crack factor)	dimensionless	S <sub>b</sub>	0.1	0.1
<b>OUTDOOR AIR COMPONENT</b>				
Downwind contamination length	m	L		0
Wind speed	m/hr	u		16000
Height of building openings	m	h		2
<b>EXPOSURE SCENARIO</b> Default values are for Industrial Uses				
Body weight	kg	BW		70
Inhalation rate	m3/day	IR		20
Exposure duration	yrs	ED		25
Hours per day	hr/day			12
Days per week	days/week			5
Weeks per year	weeks/yr			50
<b>HEALTH RISK FACTORS</b>				
Reference dose	mg/kg-day	RfD		0.0017
Slope factor (potency)	1/(mg/kg-day)	SF		0.1

**SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL**

Page 1-2

**Risk Calculations**

Version: November 1999

Revised 01-08-2002

Case Name: Davey Property - Typical Commercial Building

Chemical: benzene

**Variable Descriptions****Units****CALCULATION OF SOIL GAS CONCENTRATION****A. SOURCE - Free Product/Soil > 100 mg/kg.**

Mole fraction	MF	=	0.00E+00	dimensionless
Molecular weight	MW	=	7.81E+04	mg/mole
Vapor pressure	VP	=	1.30E-01	atm
Universal gas constant	R	=	8.20E-05	atm-m <sup>3</sup> /mole-K
Temperature	T	=	2.93E+02	K
Calculated soil gas concentration	C <sub>sg(fp)</sub>	=	0.00E+00	mg/m <sup>3</sup>

**B. SOURCE - Groundwater**

Water contamination level	C <sub>w</sub>	=	0.00E+00	ug/l
Henry's Law Constant	H	=	2.30E-01	dimensionless
Calculated soil gas concentration	C <sub>sg(gw)</sub>	=	0.00E+00	mg/m <sup>3</sup>

**C. SOURCE - Soil < 100 mg/kg**

Soil contamination level	C <sub>i</sub>	=	0.00E+00	mg/kg
Henry's Law Constant	H	=	2.30E-01	dimensionless
Bulk density (dry)	ρ <sub>b</sub>	=	1.80E+00	gm/cc
Air-filled porosity	θ <sub>a</sub>	=	2.00E-01	dimensionless
Water-filled porosity	θ <sub>w</sub>	=	1.00E-01	dimensionless
Soil/water distribution coef.	K <sub>d</sub>	=	6.20E-01	cm <sup>3</sup> /gm
Calculated soil gas concentration	C <sub>sg(s)</sub>	=	0.00E+00	mg/m <sup>3</sup>

**D. SOURCE - Measured Soil Gas**

Measured soil gas concentration	C <sub>sg(m)</sub>	=	1.06E+00	mg/m <sup>3</sup> (ug/l)
---------------------------------	--------------------	---	----------	--------------------------

**E. SOIL GAS CONCENTRATION USED IN RISK CALCULATIONS >>>> 1.06E+00 mg/m<sup>3</sup>****DIFFUSIVE TRANSPORT UPWARD IN UNSATURATED ZONE**

Total porosity	θ	=	3.00E-01	dimensionless
Air-filled porosity	θ <sub>a</sub>	=	2.00E-01	dimensionless
Diffusion coefficient in air	D <sub>a</sub>	=	8.80E-02	cm <sup>2</sup> /sec
Effective diffusion coefficient	D <sub>e</sub>	=	4.60E-03	cm <sup>2</sup> /sec
Depth of contamination or C <sub>sg</sub>	X	=	6.10E-01	m
Calculated Flux	F <sub>x</sub>	=	2.88E-03	mg/m <sup>2</sup> -hour

**SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL**

Page 2-2

**Risk Calculations**

Version: November 1999

Revised 12/20/2000

Case Name: Davey Property - Typical Commercial Building**CALCULATING VAPOR CONCENTRATION IN BUILDING****A. INDOOR AIR COMPONENT**

Floor area of building	A	=	1.00E+00	m2
% of floor area that flux occurs			1.00E+00	dimensionless
Attenuation factor(Crack factor)	S <sub>b</sub>	=	1.00E-01	dimensionless
Flux area within building	A <sub>f</sub>	=	1.00E-01	m2
Interior Height of building	R <sub>h</sub>	=	2.44E+00	m
Volume of building	V	=	2.44E+00	m3
Exchange rate of air	E	=	8.30E-01	exchanges/hr
Ventilation rate	Q	=	2.03E+00	m3/hr
Indoor air component	C <sub>i</sub>	=	1.42E-04	mg/m3

**B. OUTDOOR AIR COMPONENT**

Downwind contamination length	L	=	0.00E+00	m
Wind speed	u	=	1.60E+04	m/hr
Height of building openings (or height of breathing zone)	h	=	2.00E+00	m
Outdoor air component	C <sub>o</sub>	=	0.00E+00	mg/m3

**C. TOTAL INDOOR AIR CONCENTRATION**

C <sub>t</sub>	=	1.42E-04	mg/m3
----------------	---	----------	-------

**EXPOSURE SCENARIO**

Body weight	BW	=	7.00E+01	kg
Inhalation rate	IR	=	2.00E+01	m3/day
Exposure duration	ED	=	2.50E+01	yrs
Hours per day	conversion		1.20E+01	hr/day
Exposure time	ET	=	5.00E-01	hr/24 hours
Days per week	conversion		5.00E+00	days/week
Weeks per year	conversion		5.00E+01	weeks/yr
Exposure frequency	EF	=	2.50E+02	days/yr
Averaging Time (carc. risk)	AT	=	2.56E+04	days
Averaging Time (non-carc. risk)	AT	=	9.13E+03	days
Chemical Intake (carc. risk)	IT <sub>c</sub>	=	4.96E-06	mg/kg-day
Chemical Intake (non-carc. risk)	IT <sub>nc</sub>	=	1.39E-05	mg/kg-day

**NON-CARCINOGENIC RISK (Chronic Risk)**

Chemical Intake (non-carc. risk)	IT <sub>nc</sub>	=	1.39E-05	mg/kg-day
Reference dose	RfD	=	1.70E-03	mg/kg-day
Hazard Index	HI	=	8.18E-03	

**CARCINOGENIC RISK**

Chemical Intake (carc. risk)	IT <sub>c</sub>	=	4.96E-06	mg/kg-day
Slope factor (potency)	SF	=	1.00E-01	1/(mg/kg-day)
Cancer Risk	Risk	=	4.96E-07	



# SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL

Page 1-2

Input Data

Version: November 1999

Revised 01-08-2002

Case Name:

Davey Property - Typical Commercial Building

## CHEMICAL OF CONCERN:

Enter Chemical Name =

benzene

C11 benzene

C12 benzo(a)pyrene

C13 carbon tetrachloride

C14 chlorobenzene

C15 chloroethane (ethyl chloride)

C16 chloromethane (methyl chloride)

C17 1,2-dichlorobenzene

C18 1,3-dichlorobenzene

C19 1,4-dichlorobenzene

C20 1,1-dichloroethene (1,1-DCE)

C21 trans-1,2-dichloroethene

C22 1,1-dichloroethane (1,1-DCA)

C23 1,2-dichloroethane (1,2-DCA)

E11 dichloromethane (methylene chloride)

E12 ethylbenzene

E13 naphthalene

E14 methyl tertiary butyl ether (MTBE)

E15 tetrachloroethene (PCE)

E16 toluene

E17 1,1,1-trichloroethane

E18 1,1,2-trichloroethane

E19 trichloroethene (TCE)

E20 trichloromethane (chloroform)

E21 vinyl chloride

E22 xylene

Chemical Mixture (if app.) =

C27 Gasoline

C28 Kerosene

C29 Diesel

E27 Fuel Oil

E28 Waste Oil

If compound is not listed then data must be entered into the site-specific field.

SITE SPECIFIC INFORMATION			Site-Specific	Value Used
Mole fraction	dimensionless	MF		0.0000
Temperature	K	T		293
Water concentration (chemical)	ug/l	C <sub>w</sub>		0
Soil concentration (chemical)	mg/kg	C <sub>t</sub>		0
Soil concentration (TPH/TRPH)	mg/kg	C <sub>t</sub>		0
Soil gas concentration (measured)	mg/m3 (ug/l)	C <sub>sg</sub> (m)	2.09	2.09
Depth of contamination or Soil Gas	m	X	1.52	1.52

# SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL

Page 2-2

Data Input

Version: November 1999

Revised 12/20/2000

CHEMICAL PROPERTIES			Site Specific	Value Used
Henry's Law Constant	dimensionless	H		0.23
Vapor pressure	atm	VP		0.13
Molecular weight (chemical)	mg/mole	MW		78,110
Molecular weight (mixture)	mg/mole	MW(m)		#N/A
Universal gas constant	atm-m <sup>3</sup> /mole-K	R	XXXXXXXXXX	8.20E-05
Diffusion coefficient in air	cm <sup>2</sup> /sec	D <sub>a</sub>		0.088
Organic carbon partitioning coef.	cm <sup>3</sup> /gm	K <sub>oc</sub>		62
SOIL PROPERTIES				
Total porosity	dimensionless	θ		0.3
Air-filled porosity	dimensionless	θ <sub>a</sub>		0.2
Water-filled porosity	dimensionless	θ <sub>w</sub>	XXXXXXXXXX	0.1
Bulk density (dry)	gm/cc	r <sub>b</sub>		1.8
Weight fraction of organic carbon	dimensionless	foc		0.01
BUILDING SPECIFICATIONS				
Floor area of building	m <sup>2</sup>	A		1
% of floor area that flux occurs	dimensionless			100%
Interior Height of building	m	R <sub>h</sub>		2.44
Exchange rate of air	exchanges/hr	E		0.83
Attenuation factor(Crack factor)	dimensionless	S <sub>b</sub>	0.1	0.1
OUTDOOR AIR COMPONENT				
Downwind contamination length	m	L		0
Wind speed	m/hr	u		16000
Height of building openings	m	h		2
EXPOSURE SCENARIO Default values are for Industrial Uses				
Body weight	kg	BW		70
Inhalation rate	m <sup>3</sup> /day	IR		20
Exposure duration	yrs	ED		25
Hours per day	hr/day			12
Days per week	days/week			5
Weeks per year	weeks/yr			50
HEALTH RISK FACTORS				
Reference dose	mg/kg-day	RfD		0.0017
Slope factor (potency)	1/(mg/kg-day)	SF		0.1

# SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL

Page 1-2

## Risk Calculations

Version: November 1999

Revised 01-08-2002

Case Name: Davey Property - Typical Commercial Building

Chemical: benzene

### Variable Descriptions

Units

### CALCULATION OF SOIL GAS CONCENTRATION

#### A. SOURCE - Free Product/Soil > 100 mg/kg.

Mole fraction	MF	=	0.00E+00	dimensionless
Molecular weight	MW	=	7.81E+04	mg/mole
Vapor pressure	VP	=	1.30E-01	atm
Universal gas constant	R	=	8.20E-05	atm-m <sup>3</sup> /mole-K
Temperature	T	=	2.93E+02	K
Calculated soil gas concentration	C <sub>sg(fp)</sub>	=	0.00E+00	mg/m <sup>3</sup>

#### B. SOURCE - Groundwater

Water contamination level	C <sub>w</sub>	=	0.00E+00	ug/l
Henry's Law Constant	H	=	2.30E-01	dimensionless
Calculated soil gas concentration	C <sub>sg(gw)</sub>	=	0.00E+00	mg/m <sup>3</sup>

#### C. SOURCE - Soil < 100 mg/kg

Soil contamination level	C <sub>t</sub>	=	0.00E+00	mg/kg
Henry's Law Constant	H	=	2.30E-01	dimensionless
Bulk density (dry)	ρ <sub>b</sub>	=	1.80E+00	gm/cc
Air-filled porosity	θ <sub>a</sub>	=	2.00E-01	dimensionless
Water-filled porosity	θ <sub>w</sub>	=	1.00E-01	dimensionless
Soil/water distribution coef.	K <sub>d</sub>	=	6.20E-01	cm <sup>3</sup> /gm
Calculated soil gas concentration	C <sub>sg(s)</sub>	=	0.00E+00	mg/m <sup>3</sup>

#### D. SOURCE - Measured Soil Gas

Measured soil gas concentration	C <sub>sg(m)</sub>	=	2.09E+00	mg/m <sup>3</sup> (ug/l)
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E. SOIL GAS CONCENTRATION USED IN RISK CALCULATIONS >>>> 2.09E+00 mg/m<sup>3</sup>

### DIFFUSIVE TRANSPORT UPWARD IN UNSATURATED ZONE

Total porosity	θ	=	3.00E-01	dimensionless
Air-filled porosity	θ <sub>a</sub>	=	2.00E-01	dimensionless
Diffusion coefficient in air	D <sub>a</sub>	=	8.80E-02	cm <sup>2</sup> /sec
Effective diffusion coefficient	D <sub>e</sub>	=	4.60E-03	cm <sup>2</sup> /sec
Depth of contamination or C <sub>sg</sub>	X	=	1.52E+00	m
Calculated Flux	F <sub>x</sub>	=	2.28E-03	mg/m <sup>2</sup> -hour

**SITE ASSESSMENT & MITIGATION VAPOR RISK ASSESSMENT MODEL**

Page 2-2

**Risk Calculations**

Version: November 1999

Revised 12/20/2000

Case Name: Davey Property - Typical Commercial Building**CALCULATING VAPOR CONCENTRATION IN BUILDING****A. INDOOR AIR COMPONENT**

Floor area of building	A	=	1.00E+00	m2
% of floor area that flux occurs			1.00E+00	dimensionless
Attenuation factor(Crack factor)	S <sub>b</sub>	=	1.00E-01	dimensionless
Flux area within building	A <sub>f</sub>	=	1.00E-01	m2
Interior Height of building	R <sub>h</sub>	=	2.44E+00	m
Volume of building	V	=	2.44E+00	m3
Exchange rate of air	E	=	8.30E-01	exchanges/hr
Ventilation rate	Q	=	2.03E+00	m3/hr
Indoor air component	C <sub>i</sub>	=	1.12E-04	mg/m3

**B. OUTDOOR AIR COMPONENT**

Downwind contamination length	L	=	0.00E+00	m
Wind speed	u	=	1.60E+04	m/hr
Height of building openings (or height of breathing zone)	h	=	2.00E+00	m
Outdoor air component	C <sub>o</sub>	=	0.00E+00	mg/m3

**C. TOTAL INDOOR AIR CONCENTRATION**

	C <sub>t</sub>	=	1.12E-04	mg/m3
--	----------------	---	----------	-------

**EXPOSURE SCENARIO**

Body weight	BW	=	7.00E+01	kg
Inhalation rate	IR	=	2.00E+01	m3/day
Exposure duration	ED	=	2.50E+01	yrs
Hours per day	conversion		1.20E+01	hr/day
Exposure time	ET	=	5.00E-01	hr/24 hours
Days per week	conversion		5.00E+00	days/week
Weeks per year	conversion		5.00E+01	weeks/yr
Exposure frequency	EF	=	2.50E+02	days/yr
Averaging Time (carc. risk)	AT	=	2.56E+04	days
Averaging Time (non-carc. risk)	AT	=	9.13E+03	days
Chemical Intake (carc. risk)	IT <sub>c</sub>	=	3.93E-06	mg/kg-day
Chemical Intake (non-carc. risk)	IT <sub>nc</sub>	=	1.10E-05	mg/kg-day

**NON-CARCINOGENIC RISK (Chronic Risk)**

Chemical Intake (non-carc. risk)	IT <sub>nc</sub>	=	1.10E-05	mg/kg-day
Reference dose	RfD	=	1.70E-03	mg/kg-day
Hazard Index	HI	=	6.47E-03	

**CARCINOGENIC RISK**

Chemical Intake (carc. risk)	IT <sub>c</sub>	=	3.93E-06	mg/kg-day
Slope factor (potency)	SF	=	1.00E-01	1/(mg/kg-day)
Cancer Risk	Risk	=	3.93E-07	

**APPENDIX C**

**DRILLING PERMIT COVER SHEET**



PERMIT # W100212  
A.P.N. # 489-390-13  
EST # H03126-001

**COUNTY OF SAN DIEGO  
DEPARTMENT OF ENVIRONMENTAL HEALTH  
LAND AND WATER QUALITY DIVISION**

**MONITORING WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT**

SITE NAME: SUSAN DAVEY / WURZELL ESTATE PROPERTY

SITE ADDRESS: 1279-1281 E. MAIN STREET, EL CAJON, CA 92021

PERMIT FOR: **3 BORINGS**

PERMIT APPROVAL DATE: DECEMBER 10, 2001

PERMIT EXPIRES ON: APRIL 9, 2002

**PERMIT CONDITIONS:**

1. All borings must be sealed from the bottom of the boring to the ground surface with an approved sealing material as specified in California Well Standards Bulletin 74-90, Part III, Section 19.D. **Drill cuttings are not an acceptable fill material.**
2. Placement of any sealing material at a depth greater than 30 feet must be done using the tremie method.
3. All wash water must be contained and disposed of properly.
4. All water and soil that is placed in drums must be labeled and stored as specified in the SAM Manual in: Section 5, Page 7, (5.)
5. Within 60 days of completing work, submit a well/boring construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.
6. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 338-2339.

**NOTE:** This permit does not constitute approval of a work plan as defined in Section 2722 of Article 11 of C.C.R., Title 23. Work plans are required for all unauthorized release investigations in San Diego County.

APPROVED BY: *M. Crystal*  
MARISUE CRYSTAL

DATE: 12/10/2001

NOTIFIED: 12/10/01 *MBE*

## **APPENDIX D**

### **METHODS AND PROCEDURES**

**D.1 - Drilling and Soil Sampling Procedures**

**D.2 - Decontamination Procedures**

**D.3 - Groundwater Monitoring Well Construction and  
Development Procedures**

**D.4 - Groundwater Monitoring Well Sampling Procedures**

## APPENDIX D -- METHODS AND PROCEDURES

### D.1 DRILLING AND SOIL SAMPLING PROCEDURES

Subsurface soil samples were collected by mechanical drilling methods using a truck-mounted drilling rig capable of drilling by continuous-flight hollow-stem auger (HSA) method. HSA methods are used when large-diameter or deep borings are required to investigate the subsurface and/or to install groundwater monitoring wells. Soil samples are collected as explained below.

In HSA drilling method, the augers and bits are decontaminated before and between borings by steam-cleaning to prevent cross-contamination by the drilling equipment. According to current SAM guidelines, equipment wash water must be contained on-site until laboratory results are available. Soil cuttings are contained in 55-gallon drums and labeled with respect to contents, origin, and contact person information.

During HSA drilling, soil samples are generally collected at five-foot intervals and at lithologic changes by driving a cylindrical sampler 18 inches into undisturbed soil beneath the base of the augers. When the sampler has reached its maximum penetration, it is withdrawn from the borehole and disassembled. Soil samples are retained and packaged, and the sampler is decontaminated by first scrubbing with a low-phosphate detergent solution, then rinsing with tap water, followed by deionized water.

In this soil sampling method, a portion of each sample is packed in a glass jar or a brass tube with Teflon™-lined lid or end caps. In most cases, the brass or stainless steel tubes are inserted within the sampler and packed with soil as the sampler is driven into the soils. Samples are labeled with respect to location, depth, and date, and then signed and sealed by the sampler. Samples are then entered onto a chain-of-custody form and preserved on ice or refrigerated until delivery to the analytical laboratory.

Field screening for the presence of volatile organic compounds is accomplished with a Foxboro Model 128 organic vapor analyzer (OVA) or photoionization detector (PID). To screen for organic vapors, a soil portion is placed in a one-quart sealable plastic bag, desegregated, and exposed to direct sunlight, which allows soil vapors to collect in the air space of the sealed bag. After a short period of time (five to ten minutes), the bag is pierced with the probe and the reading is recorded. The OVA is calibrated to methane or the PID is calibrated to isobutylene at the beginning of the day. The reading is an indication of the concentration of the volatile organic compounds in the soil sample relative to similar samples analyzed under the same conditions. OVA and PID readings for each bagged sample are noted on the boring and monitoring well logs.

All soil borings, mechanical or manual, are either permitted with the County of San Diego Department of Health Services for drilling deeper than 20 feet, for conditions where groundwater will be encountered, or to construct groundwater/vadose zone monitoring wells, or they are abandoned in accordance with California Department of Water Resources Bulletins 74-81 and 74-90.

### D.2 DECONTAMINATION PROCEDURES

Drilling equipment was either steam cleaned or washing with a high-pressure spray. Equipment which was used for sampling and which was in direct contact with soil or groundwater underwent a stringent decontamination process. The procedures are as follows:

- Brush off loose dirt with a bristle brush or cloth in the decontamination area so no visible residuals remain.



- Using scrub brushes, wash equipment in a solution consisting of non-phosphate detergent and tap water.
- Rinse equipment in tap water.
- As the final step, rinse equipment with distilled water and allow to air dry.

### **D.3 GROUNDWATER MONITORING WELL CONSTRUCTION AND DEVELOPMENT PROCEDURES**

Groundwater monitoring well construction is completed through the annular space of the eight- or ten-inch-diameter continuous-flight hollow-stem augers. Well construction details include extending a two-inch diameter polyvinyl chloride (PVC) casing from bottom of the borehole to the surface. The casing is factory perforated with 0.02 inch wide slots from the bottom of the borehole to approximately five feet above the water table. The remainder of the casing to the surface is unperforated. A filter pack of #3 commercially graded sand extends from the bottom of the borehole to approximately three feet above the perforated casing. To construct the well and prevent the borehole from collapsing, the augers are withdrawn from the subsurface as the sand pack and bentonite seal are placed within the annular space of the augers. When the sand pack has been placed, the well is then surged for a minimum of five minutes to settle the sand pack. Additional sand is then added if necessary to complete the construction according to specifications. The annular space is then sealed with three feet of hydrated bentonite clay. The remainder of the well is filled with cement grout. Above the grout, a locking, water-tight traffic-rated well cover is set in concrete to protect and secure the wellhead.

Following construction, the monitoring wells are developed by surging and bailing. Development continues until sand-free water is produced. Water quality parameters such as pH, conductivity and temperature are measured during development to insure that formational water is entering the well. Three to five bore volumes of water are typically removed from the wells during development.

### **D.4 GROUNDWATER MONITORING WELL SAMPLING PROCEDURES**

The following procedures for well sampling were developed after the SAM's publication entitled "Site Assessment and Mitigation (SA/M) Manual", dated January 1996, and updated for 2000 and 2002.

A. Using a decontaminated instrument (i.e., an interface probe), measure the depth to groundwater in reference to the measuring point at the top of the casing. Measure the total depth of the well to determine the height and volume of water in the well casing and borehole and record the measurements on the SECOR Monitoring Well Gauging Log form.

B. Decontaminate PVC and/or Teflon™ bailers by scrubbing with a long handled brush in a low-phosphate detergent solution, followed by a tap water rinse and then a deionized water rinse.

C. Utilize dedicated extraction tubing (lift pumps) or decontaminated pumping equipment (submersible pumps), as appropriate, to prepare pumping equipment for well purging.

D. Conduct field measurements for temperature, pH, and conductivity after approximately one borehole volume has been purged, or if the water level in the well is so low as to prevent further purging (i.e., the well is dry).

1) If the well has not been purged dry, continue to bail and/or pump an additional one-half borehole volume and conduct field measurements again.

a) If the first and second series of measurements vary by less than ten percent, the well has been adequately purged. Allow the well to recover to 80 percent of its static condition and begin the sampling procedure.

b) If the measurements vary by ten percent or greater, repeat Step D1 above.

2) If the well has been purged dry, measure the water level and allow the well to recharge to 80 percent of its static condition, or for two hours, whichever occurs first. Calculate the percent recovery.

a) If the well recovers less than 80 percent within two hours, it is a slow recharging well. Begin the sampling procedure.

b) If the well recovers to 80 percent or more within two hours, it is a fast recharging well. Repeat Step D1 above.

E. After adequate recharge of monitoring wells (approximately 80 percent recovery from maximum drawdown or after two hours if less than 80 percent is observed), use the decontaminated bailer to collect the groundwater sample.

F. Transfer the groundwater sample into the appropriate sample container(s) for the analyte to be tested, and label each sample using completed sample labels.

G. Discard or dedicate the bailer cord or pump tubing and repeat bailer/pumping equipment decontamination procedures in preparation of sampling the next well.

H. Complete Well Purging/Sampling Log forms for each well sampled and the chain-of-custody record.

I. When requested by client, collect field and trip blank samples of deionized water to check decontamination procedures. Additional and/or alternate field QA/QC samples can be collected and analyzed upon request.

J. Enter the sample onto the chain-of-custody form and preserve on ice in cooler until delivery to the analytical laboratory. Package samples for shipping; check each sample for proper labeling. Include the samples and custody paperwork in the cooler shipped to the laboratory.

## **APPENDIX E**

### **BOREHOLE LOGS AND LEGEND**

# SECOR

## BOREHOLE LOG

Number:

SB-4

Client:

Mr. Richard Reid

Job No:

08OT.04926.00

Sheet:

1 of 1

Location:

Susan Davey Property  
1279/ 1281 East Main Street  
El Cajon, CA

Drilling Company/Driller:

Tri-County Drilling, Inc.

SECOR Rep:

Brian Demme

Approved by:

Date Started:

3/5/02

Date Finished:

3/5/02

Drill Rig/Sampling Method:

CME 75/ Hollow Stem Auger/ Continuous Core Barrel

Borehole Dia.:

8"

Casing Dia.:


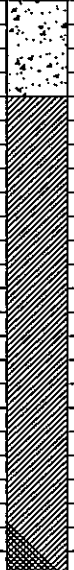

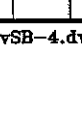
NA

Surface Elevation:

NA

### SAMPLE LOG

### BOREHOLE LOG

Sample Number	OVA/PID (ppm)	Lab Results TPH(ppm)	Density Blows/ft	Depth in Feet	USCS Symbol	Graphic Log	Geologic Description (Soil Type, Color, grain, minor soil component, moisture, density, odor, etc.)	Backfill Detail
				0			Covered by: Asphalt (4") Base (4")	
				1	SM		Silky SAND, moderate brown (5YR 3/4), fine grained, moist, dense, slight hydrocarbon (HC) odor.	
				2				
				3				
				4				
SB-4/5'	10	<0.5		5				
				6				
				7				
				8				
				9				
SB-4/10'	1,000	80		10				
				11			Becomes grayish brown (5YR 3/2). Strong HC odor.	
				12			Becomes moderate brown (5YR 3/4). Very dense.	
SB-4/12'	1,000	1,400		13				
				14				
				15				
				16				
				17				
				18				
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				27				
				28				
				29				
				30				

TOTAL DEPTH DRILLED = 12' BGS

Borehole backfilled bentonite chips and capped with concrete.

# SECOR

## BOREHOLE LOG

Number:

SB-5

Client:

Mr. Richard Reid

Job No:

08OT.04926.00

Sheet:

1 of 1

Location:

Susan Davey Property  
1279/ 1281 East Main Street  
El Cajon, CA

Drilling Company/Driller:

Tri-County Drilling, Inc.

SECOR Rep:

Brian Demme

Approved by:

Date Started:

3/5/02

Date Finished:

3/5/02

Drill Rig/Sampling Method:

CME 75/ Hollow Stem Auger/ Continuous Core Barrel

Borehole Dia.:

8"

Casing Dia.:

NA

Surface Elevation:

NA

### SAMPLE LOG

### BOREHOLE LOG

Sample Number	OVA/PID (ppm)	Lab Results TPH(ppm)	Density Blows/ft	Depth in Feet	USCS Symbol	Graphic Log	Geologic Description (Soil Type, Color, grain, minor soil component, moisture, density, odor, etc.)	Backfill Detail
				0			Covered by: Asphalt (4") Base (4")	
				1				
				2	SM		Silty SAND, moderate brown (5YR 3/4), fine grained, trace coarse sand, weathered concrete, brick, moist, no hydrocarbon (HC) odor.	
				3				
				4				
SB-5/5'	0.0	<0.5		5				
				6				
				7				
				8				
				9				
SB-5/10'	1,000	960		10			Becomes strong HC odor.	
				11				
SB-5/12'	1,000	1,800		12				
				13				
				14				
				15				
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				99				
				100				

TOTAL DEPTH DRILLED = 12' BGS

Borehole backfilled bentonite chips and capped with concrete.

# SECOR

## BOREHOLE LOG

Number:

SB-6

Client:

Mr. Richard Reid

Job No:

08OT.04926.00

Sheet:

1 of 1

Location:

Susan Davey Property  
1279/ 1281 East Main Street  
El Cajon, CA

Drilling Company/Driller:

Tri-County Drilling, Inc.

SECOR Rep:

Brian Demme

Approved by:

Date Started:

3/5/02

Date Finished:

3/5/02

Drill Rig/Sampling Method:

CME 75/ Hollow Stem Auger/ Continuous Core Barrel

Borehole Dia.:

8"

Casing Dia.:

NA

Surface Elevation:

NA

### SAMPLE LOG

### BOREHOLE LOG

Sample Number	OVA/PID (ppm)	Lab Results TPH(ppm)	Density Blows/ft	Depth in Feet	USCS Symbol	Graphic Log	Geologic Description (Soil Type, Color, grain, minor soil component, moisture, density, odor, etc.)	Backfill Detail
				0			Covered by: Grass (6")	
				1	SM/SC		Silty SAND, moderate brown (5YR 3/4), fine grained, dry to moist, medium dense, no hydrocarbon (HC) odor. Borderline silt or clay.	
				2				
				3				
				4				
SB-6/5'	0.0	<0.5		5				
				6				
				7				
				8				
				9				
SB-6/10'	0.0	<0.5		10	SM		Silty SAND, moderate brown (5YR 4/4), fine grained, trace fine gravel, moist, dense, no HC odor.	
				11				
SB-6/12'	0.0	<0.5		12				
				13				
				14				
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				96				
				97				
				98				
				99				
				100				

TOTAL DEPTH DRILLED = 12' BGS

Borehole backfilled bentonite chips and capped with concrete.

# DEFINITION OF TERMS

PRIMARY DIVISIONS			GRAPHIC SYMBOL	GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS More Than Half Of Material Is Larger Than No. 200 Sieve Size	GRAVELS  More Than Half Of Coarse Fraction Is Larger Than No. 4 Sieve	Clean Gravels (Less Than 5% Fines)		GW	Well graded gravels, gravel-sand mixtures, little or no fines.
		Gravel With Fines		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
				GM	Clayey gravels, gravel-sand-clay mixtures, non-plastic fines.
				GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS  More Than Half Of Coarse Fraction Is Smaller Than No. 4 Sieve	Clean Sands (Less Than 5% Fines)		SW	Well graded sands or gravelly sands, little or no fines.
		Sands With Fines		SP	Poorly graded sands or gravelly sands, little or no fines.
				SM	Silty sands, sand-silt mixtures, plastic fines.
				SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS More Than Half Of Material Is Smaller Than No. 200 Sieve Size	SILTS AND CLAYS  Liquid Limit Is Less Than 50%			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS  Liquid Limit Is Greater Than 50%			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
	HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.
				Dg	Decomposed granite.

**SECOR**

INTERNATIONAL INCORPORATED  
2655 CAMINO DEL RIO N., SUITE 302  
SAN DIEGO, CA. 92108

**BOREHOLE/WELL LOG LEGEND**

Page 1 of 2

# GRAIN SIZES

U.S. Standard Series Sieve					Clear Square Sieve Openings		
200	40	10	4	3/4"	3"	12"	
SILT and CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	Fine	Medium	Coarse	Fine	Coarse		

## RELATIVE DENSITY

Sand and Gravels	Blows/Foot <sup>†</sup>
Very Loose	0 - 4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

## CONSISTENCY

Silt and Clays	Strength <sup>‡</sup>	Blows/Foot <sup>†</sup>
Very Loose	0 - 1/4	0 - 2
Soft	1/4 - 1/2	2 - 4
Firm	1/2 - 1	2 - 4
Stiff	1 - 2	8 - 16
Very Stiff	2 - 4	16 - 32
Hard	Over 4	Over 32

<sup>†</sup> Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split Spoon (ASTM D-1586).

<sup>‡</sup> Unconfined compressive strength in tons/sq.ft. as determined by laboratory testing or approximated by the standard penetration test (AST D-1586), pocket penetrometer, torvane, or visual observation.

## Graphic Log Symbols



Free Product



Ground Water (Static)



Ground Water (First Encountered)

## Well Design Symbol



Centralizer

## Abbreviations Used

ags	Above Ground Surface
msl	Mean Sea Level
A/C	Asphalt/Concrete
Bent	Bentonite
bgs	Below Ground Surface
dia	Diameter
'	Feet
FP	Free Product
GW	Groundwater
HC	Hydrocarbon
"	Inches
med	Medium
mod	Moderate
NR	Not Recorded
ppm	Parts Per Million

## Abbreviations Used



Asphalt
Concrete
Concrete Slurry
Bentonite
Bentonite Grout
Sand
Screened Interval

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2655 CAMINO DEL RIO N., SUITE 302  
SAN DIEGO, CA. 92108

## BOREHOLE/WELL LOG LEGEND

Page 2 of 2



## **APPENDIX F**

### **MONITORING WELL GAUGING LOG WELL PURGING/SAMPLING LOGS**

# Susan Davey Property

Date: 2/19/02

Field Representative(s):

M. Siebert & M. Oliphant

92679

Checked by:

[illegible]

1' = feet above mean sea level unless noted otherwise

\* = elevation adjusted by adding (.75 x product thickness) to measured water elevation

- = not measured due to the present of liquid-phase hydrocarbons

Sheen = discontinuous, non-measurable thickness of LPH  
Trace = continuous, non-measurable thickness of LPH

# SECOR

INTERNATIONAL  
INCORPORATED

## WELL PURGING / SAMPLING LOG

Well No:

MW- 1

Project Name: Susan Davey Property

Date: 2/19/02

Project Number: 08OT.04926.00 / 0010

Sample Time: 1140

SECOR Rep: M. Siebert

Checked by: [Signature]

Sample No: MW- 1

### PURGING & SAMPLING EQUIPMENT / METHOD

### WELL SPECIFICATIONS & MEASUREMENTS

Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): 8 <u>10</u> 12 Vault
Purging Equipment / Method: <input type="checkbox"/> Vac Truck <input checked="" type="checkbox"/> Bailer Submersible Pump <input type="checkbox"/> Other	Casing Diameter (in): 2 <u>4</u> 6 8 10 12
pH Temp/Conductivity Meter Type / ID: Cole Parmer CP-1	Depth to Water (DTW <sub>1</sub> ) (ft): 9.80
Sampling Method: <input type="checkbox"/> Teflon Bailer <input checked="" type="checkbox"/> Disposable Bailer Other:	Total Well Depth (DTB) (ft): 20.00
Decontamination Method: <input checked="" type="checkbox"/> Steam / High Pressure Wash <input checked="" type="checkbox"/> 3 Stage (Alconox, Tap & DI rinse) Other:	Water Column: 10.20
	Floating Product:
	Thickness (in):
	Borehole Volume (gal): 15.30
	1.5 Borehole Volumes (gal): 22.95

### PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1100	Started Purging					
1109	14.39	15	6.64	19.4	1370	Bad odor, Cloudy, Brown
1119	15.51	23	6.69	19.3	1389	" " "
1140	10.94	SAMPLE				

Maximum Drawdown (DTW<sub>2</sub>) (ft) = 15.51

Pump Rate (GPM) = 1.21

☒ Fast Recharging Well

☐ Slow Recharging Well

### SAMPLING INFORMATION

Time Sampled: 1140	Depth to Water at time of sampling (DTW <sub>3</sub> ): 10.94		
Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
2 or <u>3</u> x 40ml VOAs		HCL & ICE or NONE	TPHg, BTEX, MTBE, (8015, 8260)
			DIPE, TAME, ETBE, TBA (8260b)

### BOREHOLE VOLUME CALCULATIONS

### RECOVERY CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.81 (DTB-DTW <sub>1</sub> )
2	10	1.14 (DTB-DTW <sub>1</sub> )
4	10	1.50 (DTB-DTW <sub>1</sub> )
4	12	1.95 (DTB-DTW <sub>1</sub> )

Notes:

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(9.80) - (10.94)}{(9.80) - (15.51)} = \frac{-1.14}{-5.71} = 80\%$$

80% Recharge =

10.94

# SECOR

INTERNATIONAL  
INCORPORATED**WELL PURGING / SAMPLING LOG**

Project Name: Susan Davey Property

Project Number: 08OT.04926.00 / 0010

SECOR Rep: M. Siebert

Checked by: M. J. J.

Well No: MW- 2

Date: 2/19/02

Sample Time: 1452

Sample No: MW- 2

**PURGING & SAMPLING EQUIPMENT / METHOD****WELL SPECIFICATIONS & MEASUREMENTS**

Water Level Meter Type &amp; ID: Solinist # 5

Borehole Diameter (in): 8 10 12 Vault

Purging Equipment / Method: ☐ Vac Truck ☒ Bailer  
☐ Submersible Pump ☐ Other

Casing Diameter (in): 2 4 6 8 10 12

pH Temp/Conductivity Meter Type / ID: Cole Parmer CP-1

Depth to Water (DTW<sub>1</sub>) (ft): 10.92Sampling Method: ☐ Teflon Bailer ☒ Disposable BailerTotal Well Depth  
(DTB) (ft): 20.10

Water Column: 9.18

Other:

Floating Product:

Thickness (in):

Decontamination Method: ☒ 3 Stage (Alconox, Tap & DI rinse)Borehole  
Volume (gal): 13.771.5 Borehole  
Volumes (gal): 20.66

Other:

**PURGING INFORMATION**

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1205	Started Purging					
1212	DTW	14	6.93	20.2	1260	Slight Odor, Cloudy, Brown
1252	DTW	21	6.98	22.0	1298	" " "
1452	13.75	SAMPLE				

Maximum Drawdown (DTW<sub>2</sub>) (ft) = 20.10

Pump Rate (GPM) = 0.45

☒ Fast Recharging Well☒ Slow Recharging Well**SAMPLING INFORMATION**

Time Sampled: 1452

Depth to Water at time of sampling (DTW<sub>3</sub>): 13.75

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
2 or 3 x 40ml VOAs		HCL & ICE or NONE	TPHg, BTEX, MTBE, (8015, 8260)
			DIPE, TAME, ETBE, TBA (8260b)

**BOREHOLE VOLUME CALCULATIONS****RECOVERY CALCULATIONS**

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.81 (DTB-DTW <sub>1</sub> )
2	10	1.14 (DTB-DTW <sub>1</sub> )
4	10	1.50 (DTB-DTW <sub>1</sub> )
4	12	1.95 (DTB-DTW <sub>1</sub> )

Notes:

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(10.92) - (13.75)}{(10.92) - (20.10)} = \frac{-2.83}{-9.18} = 69\%$$

80% Recharge = 12.76

# SECOR

INTERNATIONAL  
INCORPORATED**WELL PURGING / SAMPLING LOG**

Well No:

MW- 3

Project Name: Susan Davey Property

Date: 2/19/02

Project Number: 08OT.04926.00 / 0010

Sample Time:

1128

SECOR Rep:

M. Siedert

Checked by:

M. Siedert

Sample No:

MW- 3

**PURGING & SAMPLING EQUIPMENT / METHOD****WELL SPECIFICATIONS & MEASUREMENTS**

Water Level Meter Type &amp; ID: Solinist # 5

Borehole Diameter (in): 8 10 12 Vault

Purging Equipment / Method: ☐ Vac Truck ☒ Bailer  
☐ Submersible Pump ☐ Other

Casing Diameter (in): 2 4 6 8 10 12

pH Temp/Conductivity Meter Type / ID: Cole Parmer CP-1

Depth to Water (DTW<sub>1</sub>) (ft): 8.70Sampling Method: ☐ Teflon Bailer ☒ Disposable BailerTotal Well Depth  
(DTB) (ft): 17.60

Water Column: 8.90

Other:

Floating Product:

Thickness (in):

Decontamination Method: ☒ 3 Stage (Alconox, Tap & DI rinse)

Other:

Borehole  
Volume (gal): 13.351.5 Borehole  
Volumes (gal): 20.03**PURGING INFORMATION**

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1007	Started Purging					
1019	DRY	13	6.62	27.0	1206	No Odor, Cloudy, Brown
1042	DRY	20	6.95	25.2	1329	" " "
1128	9.63	SAMPLE				

Maximum Drawdown (DTW<sub>2</sub>) (ft) = 17.60

Pump Rate (GPM) = 0.57

☒ Fast Recharging Well  
☐ Slow Recharging Well**SAMPLING INFORMATION**

Time Sampled: 1128		Depth to Water at time of sampling (DTW <sub>3</sub> ): 9.63	
Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
2 or 3 x 40ml VOAs		HCL & ICE or NONE	TPHg, BTEX, MTBE, ( 8015, 8260 )
			DIPE, TAME, ETBE, TBA ( 8260b )

**BOREHOLE VOLUME CALCULATIONS****RECOVERY CALCULATIONS**

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.81 (DTB-DTW <sub>1</sub> )
2	10	1.14 (DTB-DTW <sub>1</sub> )
4	10	1.50 (DTB-DTW <sub>1</sub> )
4	12	1.95 (DTB-DTW <sub>1</sub> )

Notes:

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(8.70) - (9.63)}{(8.70) - (17.60)} = \frac{-0.93}{-8.90} = 90\%$$

80% Recharge = 10.48

# SECOR

INTERNATIONAL  
INCORPORATED

## WELL PURGING / SAMPLING LOG

Well No: MW- 4

Project Name: Susan Davey Property

Date: 2/19/02

Project Number: 08OT.04926.00 / 0010

Sample Time: 1338

SECOR Rep: M. Siebert

Checked by: M. O'K

Sample No: MW- 4

### PURGING & SAMPLING EQUIPMENT / METHOD

### WELL SPECIFICATIONS & MEASUREMENTS

Water Level Meter Type & ID: Solinist # 5	Borehole Diameter (in): 8 <u>10</u> 12 Vault
Purging Equipment / Method: <input type="checkbox"/> Vac Truck <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Other	Casing Diameter (in): 2 <u>4</u> 6 8 10 12
pH Temp/Conductivity Meter Type / ID: Cole Parmer CP-1	Depth to Water (DTW <sub>1</sub> ) (ft): 9.88
Sampling Method: <input type="checkbox"/> Teflon Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Other:	Total Well Depth (DTB) (ft): 20.25
Decontamination Method: <input type="checkbox"/> Steam / High Pressure Wash <input checked="" type="checkbox"/> 3 Stage (Alconox, Tap & DI rinse) <input type="checkbox"/> Other:	Water Column: 10.37
	Floating Product: Thickness (in):
	Borehole Volume (gal): 15.56
	1.5 Borehole Volumes (gal): 23.33

### PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1230	Started Purging					
1240	13.13	16	6.80	22.3	1192	No Odor, Cloudy, Brown Black
1246	12.27	23	6.81	22.2	1253	" " "
1338	9.88	SAMPLE	—	—	—	—

Maximum Drawdown (DTW<sub>2</sub>) (ft) = 13.13

Pump Rate (GPM) = 1.44

☒ Fast Recharging Well

☐ Slow Recharging Well

### SAMPLING INFORMATION

Time Sampled: 1338

Depth to Water at time of sampling (DTW<sub>3</sub>): 9.88

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
2 or <u>3</u> x 40ml VOAs		<u>HCL &amp; ICE</u> or NONE	TPHg, BTEX, MTBE, (8015, 8260)
			DIPE, TAME, ETBE, TBA (8260b)

### BOREHOLE VOLUME CALCULATIONS

### RECOVERY CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.81 (DTB-DTW <sub>1</sub> )
2	10	1.14 (DTB-DTW <sub>1</sub> )
4	10	1.50 (DTB-DTW <sub>1</sub> )
4	12	1.95 (DTB-DTW <sub>1</sub> )

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(9.88) - (9.88)}{(9.88) - (13.13)} = \frac{-0.00}{-3.25}$$

$$= 100\%$$

Notes:

80% Recharge =

10.53

# SECOR

INTERNATIONAL  
INCORPORATED

## WELL PURGING / SAMPLING LOG

Project Name: Susan Davey Property

Project Number: 08OT.04926.00 / 0010

SECOR Rep: M. Siebert

Checked by: M. J. J.

Well No: MW- 5

Date: 2/19/02

Sample Time: 1345

Sample No: MW- 5

### PURGING & SAMPLING EQUIPMENT / METHOD

### WELL SPECIFICATIONS & MEASUREMENTS

Water Level Meter Type &amp; ID: Solinst # 5

Borehole Diameter (in): 8 10 12 Vault

Purging Equipment / Method: ☐ Vac Truck ☒ Bailer  
☐ Submersible Pump ☐ Other

Casing Diameter (in): 2 4 6 8 10 12

pH Temp/Conductivity Meter Type / ID: Cole Parmer CP-1

Depth to Water (DTW<sub>1</sub>) (ft): 10.81Sampling Method: ☐ Teflon Bailer ☒ Disposable Bailer  
☐ Other:Total Well Depth  
(DTB) (ft): 19.00

Water Column: 8.19

Decontamination Method: ☐ Steam / High Pressure Wash  
☒ 3 Stage (Alconox, Tap & DI rinse)  
☐ Other:

Floating Product:

Thickness (in):

Borehole  
Volume (gal): 6.631.5 Borehole  
Volumes (gal): 9.95

### PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1310	Started Purging					
1318	15.05	7	6.74	23.0	1201	No Odor, Cloudy, Brown
1325	14.91	10	6.73	23.2	1261	" " "
1345	10.82	SAMPLE	—	—	—	—

Maximum Drawdown (DTW<sub>2</sub>) (ft) = 15.05

Pump Rate (GPM) = 0.67

☒ Fast Recharging Well☐ Slow Recharging Well

### SAMPLING INFORMATION

Time Sampled: 1345

Depth to Water at time of sampling (DTW<sub>3</sub>): 10.82

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
2 or 3 x 40ml VOAs		HCL & ICE or NONE	TPHg, BTEX, MTBE, (8015, 8260)
			DIPE, TAME, ETBE, TBA (8260b)

### BOREHOLE VOLUME CALCULATIONS

### RECOVERY CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.81 (DTB-DTW <sub>1</sub> )
2	10	1.14 (DTB-DTW <sub>1</sub> )
4	10	1.50 (DTB-DTW <sub>1</sub> )
4	12	1.95 (DTB-DTW <sub>1</sub> )

Notes:

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(10.81) - (10.82)}{(10.81) - (15.05)} = \frac{-0.01}{-4.24} = 100\%$$

80% Recharge =

11.66

# SECOR

INTERNATIONAL  
INCORPORATED

## WELL PURGING / SAMPLING LOG

Well No:

MW- 6

Project Name: Susan Davey Property

Date:

2/19/02

Project Number: 08OT.04926.00 / 0010

Sample Time:

1426

SECOR Rep:

M. Siefert

Checked by:

M. O'H

Sample No:

MW- 6

### PURGING & SAMPLING EQUIPMENT / METHOD

### WELL SPECIFICATIONS & MEASUREMENTS

Water Level Meter Type &amp; ID: Solinst # 5

Borehole Diameter (in): 8 10 12 Vault

Purging Equipment / Method: ☐ Vac Truck ☒ Bailer  
☐ Submersible Pump ☐ Other

Casing Diameter (in): 2 4 6 8 10 12

pH Temp/Conductivity Meter Type / ID: Cole Parmer CP4

Depth to Water (DTW<sub>1</sub>) (ft): 8.66Sampling Method: ☐ Teflon Bailer ☒ Disposable Bailer  
☐ Other:Total Well Depth  
(DTB) (ft): 18.50

Water Column: 9.84

Decontamination Method: ☒ Steam / High Pressure Wash  
☒ 3 Stage (Alconox, Tap & DI rinse)

Floating Product:

Thickness (in):

Other:

Borehole  
Volume (gal): 7.971.5 Borehole  
Volumes (gal): 11.96

### PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1400	Started Purging					
1406	9.99	8	6.88	20.0	1436	No Odor, cloudy, Brown
1412	10.31	12	6.83	21.9	1367	" " "
1426	8.66	SAMPLE	—	—	—	—

Maximum Drawdown (DTW<sub>2</sub>) (ft) = 10.31

Pump Rate (GPM) = 1.00

☒ Fast Recharging Well  
☐ Slow Recharging Well

### SAMPLING INFORMATION

Time Sampled: 1426

Depth to Water at time of sampling (DTW<sub>3</sub>): 8.66

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
2 or 3 x 40ml VOAs		HCL & ICE or NONE	TPHg, BTEX, MTBE, (8015, 8260)
			DIPE, TAME, ETBE, TBA (8260b)

### BOREHOLE VOLUME CALCULATIONS

### RECOVERY CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.81 (DTB-DTW <sub>1</sub> )
2	10	1.14 (DTB-DTW <sub>1</sub> )
4	10	1.50 (DTB-DTW <sub>1</sub> )
4	12	1.95 (DTB-DTW <sub>1</sub> )

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(8.66) - (8.66)}{(8.66) - (10.31)} = \frac{-0.00}{-1.65} = 100\%$$

Notes:

80% Recharge =

8.99



# SECOR

INTERNATIONAL  
INCORPORATED

## WELL PURGING / SAMPLING LOG

Project Name: Susan Davey Property

Project Number: 08OT.04926.00 / 0010

SECOR Rep: M. S. 'eSert / M. O. Liphant

Checked by: M. J. L.

Well No: MW- 7

Date: 2/19/02

Sample Time: 1104

Sample No: MW- 7

### PURGING & SAMPLING EQUIPMENT / METHOD

### WELL SPECIFICATIONS & MEASUREMENTS

Water Level Meter Type & ID: Solinst # 5	Borehole Diameter (in): 8 10 12 Vault
Purging Equipment / Method: <input type="checkbox"/> Vac Truck <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Other	Casing Diameter (in): 2 4 6 8 10 12
pH Temp/Conductivity Meter Type / ID: Lde Parmer EP-1	Depth to Water (DTW <sub>1</sub> ) (ft): 10.70
Sampling Method: <input type="checkbox"/> Teflon Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Other:	Total Well Depth (DTB) (ft): 20.00
Decontamination Method: <input checked="" type="checkbox"/> Steam / High Pressure Wash <input checked="" type="checkbox"/> 3 Slage (Alconox, Tap & DI rinse) <input type="checkbox"/> Other:	Floating Product: Thickness (in):
	Borehole Volume (gal): 7.53
	1.5 Borehole Volumes (gal): 11.30

### PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
1000	Started Purging					
1022	DRY	8	6.73	25.2	1397	BROWN, NO ODOR, BROWN
1035	DRY	11	6.95	24.3	1382	" " " "
1104	12.56	SAMPLE				

Maximum Drawdown (DTW<sub>2</sub>) (ft) = 20.00

Pump Rate (GPM) = 0.31

☒ Fast Recharging Well

☐ Slow Recharging Well

### SAMPLING INFORMATION

Time Sampled: 1104	Depth to Water at time of sampling (DTW <sub>3</sub> ): 12.56		
Container Types & Volumes	Filtered (Y/N)	Sample Preservatives	Analytical Parameters
2 or 3 x 40ml VOAs		HCL & ICE or NONE	TPHg, BTEX, MTBE, (8015, 8260)
			DIPE, TAME, ETBE, TBA (8260b)

### BOREHOLE VOLUME CALCULATIONS

### RECOVERY CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.81 (DTB-DTW <sub>1</sub> )
2	10	1.14 (DTB-DTW <sub>1</sub> )
4	10	1.50 (DTB-DTW <sub>1</sub> )
4	12	1.95 (DTB-DTW <sub>1</sub> )

Notes:

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(10.70) - (12.56)}{(10.70) - (20.00)} = \frac{-1.86}{-9.30} = 80\%$$

80% Recharge = 12.56

## **APPENDIX G**

### **WASTE DISPOSAL DOCUMENTATION**

# NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest  
Document No.  
20640

2. Page 1  
of 1

3. Generator's Name and Mailing Address  
Susan Davey Property  
1279/1281 E. Main St., El Cajon, CA 92020  
4. Generator's Phone ( 619-296-6195 Contact: Brian Demmis

5. Transporter 1 Company Name  
EFR Environmental Services, Inc.

6. US EPA ID Number  
C A R 0 0 0 0 1 1 2 0 5

A. Transporter's Phone 619-956-2770

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address  
Dome Rock Industries, Inc.  
3125 W. Dome Rock Road  
Quartzsite, AZ 85359

10. US EPA ID Number  
A Z R 0 0 0 0 3 5 9 1 5

C. Facility's Phone  
928-927-7688

11. Waste Shipping Name and Description

12. Containers  
No. Type

13.  
Total  
Quantity

14.  
Unit  
Wt/Vol

a. Non-Hazardous Waste Liquid

002 Dm 00110

G

b. Non-Hazardous Waste Solid

002 Dm 01000

P

c.

d.

D. Additional Descriptions for Materials Listed Above  
11a. Acceptance# (Purge Water)  
11b. Acceptance# (Soil Cuttings)  
6195PW071  
61955COL5

E. Handling Codes for Wastes Listed Above

11a. 01  
11b. 01

15. Special Handling Instructions and Additional Information

ALWAYS WEAR APPROPRIATE P.P.E. AND USE SAFE HANDLING METHODS  
Please mail C/O Secor International, Inc.-2655 Camino Del Rio No. Ste. 302  
San Diego, CA 92108-1633

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name  
Octavio Quintero (Agent)

Signature  
Octavio Quintero

Month Day Year  
03/20/02

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name  
Octavio Quintero

Signature  
Octavio Quintero

Month Day Year  
03/20/02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name  
JERRY R. JARRETT

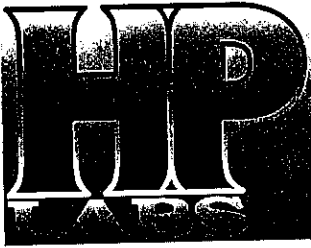
Signature  
Jerry R. Jarrett

Month Day Year  
03/23/02

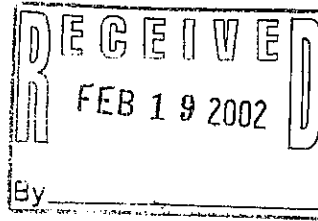
ORIGINAL - RETURN TO GENERATOR

## **APPENDIX H**

### **SUBSURFACE SOIL AND GROUNDWATER LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION**



2/14/02



Secor International  
2655 Camino Del Rio North  
San Diego, CA

Project Name: Susan Davy Property - San Diego  
Project No.: 080T.04926

Attention: Mr. Peter Rubens

The following sample(s) were received and analyzed:

<u>Date Received</u>	<u>Quantity</u>	<u>Matrix</u>	<u>Date Received</u>	<u>Quantity</u>	<u>Matrix</u>
2/8/02	7	soil			

The samples were analyzed by one or more of the EPA methodologies or equivalent methods listed below.

TPH -- CA DHS "Total Petroleum Hydrocarbons"  
VOCs -- EPA Method 8260

The results are included with a summary of the quality control procedures. Please note that the symbol "nd" indicates a value below the reporting limit for the particular compound in the sample.

Please feel free to call us to discuss any part of this report or to schedule future projects.

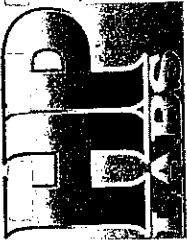
Sincerely,

  
Tamara Davis  
Lab Director

Mobile One Laboratories is certified by the California Department of Health Services (certificate #s: 1194, 1561, 1921, 2088, 2278).

HP Labs Project # SE021102-31

148 S. Vinewood Street • Escondido, CA 92029 • Phone (760) 735-3208 • Fax (760) 735-2469  
432 N. Cedros Avenue • Solana Beach, CA 92075 • Phone (858) 793-0401 • Fax (858) 793-0404  
2373 208th Street Suite F-1 • Torrance, CA 90501 • Phone (310) 782-2929 • Fax (310) 782-2798

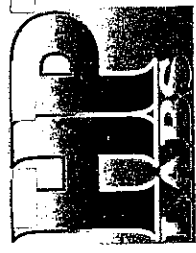


Report Summary

Client: Secor International  
Project: Susan Davy Property - San Diego  
Matrix: soil  
Units: mg/kg

Method =	TPH
Analyte =	Gasoline C <sub>6</sub> -C <sub>12</sub>
Detection Limit -	10
SAMPLE I.D.	
Date Analyzed: 02/12/02	
blank	nd
SS-1	nd
SS-2	nd
SS-3	nd
SS-4	nd
SS-5	nd
SS-6	nd
SS-7	nd

Footnotes: See Footnote Summary page.  
Analyses performed by: A. Kim  
SE021102-31



Report Summary

EPA Method 8260B (5035 Prep.)

Client: Secor International  
Project: Susan Davy Property - San Diego

Matrix: soil  
Units: ug/kg

Sample Name:  
Analysis Date  
Analysis Time  
Dilution Factor:

SS-1 12 Feb 2002 7:50 pm 1  
SS-2 12 Feb 2002 8:11 pm 1  
SS-3 12 Feb 2002 8:32 pm 1  
SS-4 12 Feb 2002 8:54 pm 1  
SS-5 13 Feb 2002 12:26 pm 1  
SS-6 13 Feb 2002 12:50 pm 1

Purge Volume(cc):

E.Q.L. Amount Found Amount Found Amount Found Amount Found Amount Found Amount Found

Methyl-t-butylether (MTBE) 10  
Benzene 10  
Toluene 10  
Ethylbenzene 10  
m,p-Xylene 10  
o-Xylene 10

nd  
nd  
nd  
nd  
nd  
nd

Surrogates Spiked QC Limits(% Rec.)

DBFM 50 ng 65-135 104  
1,2-DCA-d4 50 ng 52-149 128  
Toluene - d8 50 ng 65-135 110  
1,4-BFB 50 ng 65-135 105

Percent Recovery

106  
133  
110  
108

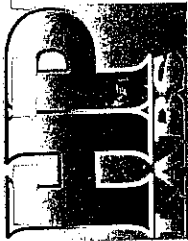
104  
130  
108  
108

99  
115  
110  
104

103  
122  
111  
106

Analyses performed by: A. Kim

SE021102-31



Client: Secor International  
Project: Susan Davy Property - San Diego

Sample Name:

SS-7

Analysis Date 13 Feb 2002

Analysis Time 6:14 pm

Dilution Factor: 1

Purge Volume(cc):

E.Q.L. Amount Found

Matrix: soil  
Units: ug/kg

blank

12 Feb 2002 13 Feb 2002

10:37 am 11:56 am

1 1

Amount Found Amount Found

Methyl-t-butylether (MTBE)	10	nd
Benzene	10	nd
Toluene	10	nd
Ethylbenzene	10	nd
m,p-Xylene	10	nd
o-Xylene	10	nd

Surrogates	Spiked	QC Limits(% Rec.)
DBFM	50 ng	65-135 96
1,2-DCA-d4	50 ng	52-149 112
Toluene - d8	50 ng	65-135 109
1,4-BFB	50 ng	65-135 102

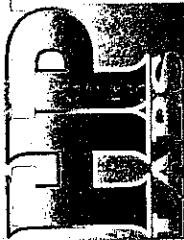
Percent Recovery

102	100
118	117
110	111
106	105

Analyses performed by: A. Kim

SE021102-31





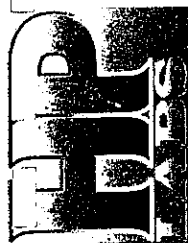
## QC Summary

Client: Secor International  
Project: Susan Davy Property - San Diego  
Matrix: soil

Method 8260	1,1-DCE	Benzene	TCE	Toluene	Cl-Benz
Recovery % QC Limits	(65-135)	(65-135)	(65-135)	(64-135)	(65-135)
RPD - % QC Limits	<30	<30	<30	<30	<30
Date Analyzed: 2/12/02					
Spike Level (ug/kg)	50.0	50.0	50.0	50.0	50.0
Sample Amount	0.0	0.0	0.0	2.2	0.0
MS Amount Found	51.2	53.0	52.3	55.4	44.4
MSD Amount Found	53.4	55.4	55.1	56.5	47.7
MS Recovery	102.4	106.0	104.5	106.4	88.8
MSD Recovery	106.8	110.8	110.2	108.6	95.4
RPD - %	4.2	4.4	5.3	2.0	7.2
Date Analyzed: 2/13/02					
Spike Level (ug/kg)	50.0	50.0	50.0	50.0	50.0
Sample Amount	0.0	0.3	0.0	3.8	0.0
MS Amount Found	51.5	52.5	52.0	56.3	45.7
MSD Amount Found	55.3	57.8	58.1	60.9	50.9
MS Recovery	103.0	104.4	104.0	105.0	91.3
MSD Recovery	110.6	114.9	116.2	114.2	101.8
RPD - %	7.0	9.6	11.0	8.4	10.9

Calibration verification was within acceptable limits.

SE021102-31



Calibration Verification

EPA Method 8260B

Client: Secor International  
Project: Susan Davy Property - San Diego

Matrix: soil  
Units: ug/kg

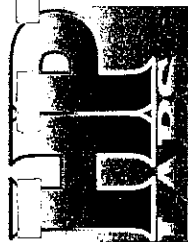
Sample Name:

ccv

Analysis Date: 12 Feb 2002  
Analysis Time: 9:47 am  
Dilution Factor: 1

CCC (-20 to +20%)  
EPA 8260 (-20 to +20%)

Compound	Amount Found	Percent Diff	CCC (-20 to +20%) Pass	EPA 8260 (-20 to +20%) Pass
Dichlorodifluoromethane	49	-3		yes
Chloromethane	39	-21		no
Vinyl Chloride	46	-9	yes	yes
Bromomethane	54	8		yes
Chloroethane	44	-12		yes
Trichlorofluoromethane	57	13		yes
1,1-Dichloroethene	51	2	yes	yes
Methylene Chloride	49	-3		yes
Methyl-t-butylether	47	-6		yes
trans-1,2-Dichloroethene	51	2		yes
1,1-Dichloroethane	45	-11		yes
2,2-Dichloropropane	57	15		yes
cis-1,2-Dichloroethene	49	-2		yes
Chloroform	56	12	yes	yes
Bromochloromethane	42	-16		yes
1,1,1-Trichloroethane	55	11		yes
1,1-Dichloropropene	53	6		yes
Carbon Tetrachloride	50	0		yes
1,2-Dichloroethane	53	5		yes
Benzene	50	1		yes
Trichloroethene	50	1		yes
1,2-Dichloropropane	40	-20	no	no
Bromodichloromethane	52	3		yes
Dibromomethane	44	-12		yes
cis-1,3-Dichloropropene	48	-5		yes
Toluene	52	4	yes	yes
trans-1,3-Dichloropropene	47	-5		yes
1,1,2-Trichloroethane	44	-12		yes
1,2-Dibromoethane	40	-19		yes
1,3-Dichloropropane	41	-17		yes



Calibration Verification

EPA Method 8260B

Client: Secor International  
Project: Susan Davy Property - San Diego

Matrix: soil  
Units: ug/kg

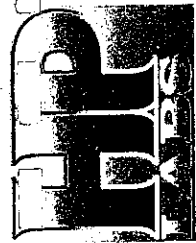
EPA 8260  
(-20 to +20%)

Sample Name:		ccv		Pass	
Compound	Amount Found	Percent Diff			
Tetrachloroethene	40	-20		no	
Dibromochloromethane	36	-27		no	
Chlorobenzene	43	-15		yes	
Ethylbenzene	44	-12	yes	yes	
1,1,1,2-Tetrachloroethane	42	-16		yes	
m,p-Xylene	87	-13		yes	
o-Xylene	43	-14		yes	
Styrene	42	-16		yes	
Bromoform	41	-19		yes	
Isopropylbenzene	50	0		yes	
1,1,1,2,2-Tetrachloroethane	41	-18		yes	
1,2,3-Trichloropropane	46	-9		yes	
n-propylbenzene	54	9		yes	
Bromobenzene	48	-4		yes	
1,3,5-Trimethylbenzene	52	3		yes	
2-Chlorotoluene	55	10		yes	
4-Chlorotoluene	55	9		yes	
tert-Butylbenzene	48	-4		yes	
1,2,4-Trimethylbenzene	50	0		yes	
sec-Butylbenzene	48	-3		yes	
p-Isopropyltoluene	48	-5		yes	
1,3-Dichlorobenzene	45	-9		yes	
1,4-Dichlorobenzene	45	-10		yes	
n-Butylbenzene	53	6		yes	
1,2-Dichlorobenzene	43	-14		yes	
1,2-Dibromo-3-chloropropane	37	-26		no	
1,2,4-Trichlorobenzene	45	-9		yes	
Hexachlorobutadiene	49	-1		yes	
Naphthalene	36	-27		no	
1,2,3-Trichlorobenzene	43	-14		yes	

SUMMATION

All compounds PASS the average % Diff. Criteria  
54 compounds PASS the 20% criteria

CALIBRATION VERIFIED



Matrix: soil  
Units: ug/kg

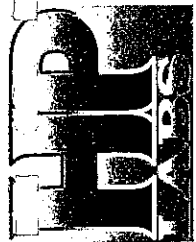
Client: Secor International  
Project: Susan Davy Property - San Diego

Sample Name: ccv  
Analysis Date: 13 Feb 2002  
Analysis Time: 8:52 am  
Dilution Factor: 1

CCC  
(-20 to +20%)  
Pass

EPA 8260  
(-20 to +20%)  
Pass

Compound	Amount Found	Percent Diff	CCC (-20 to +20%) Pass	EPA 8260 (-20 to +20%) Pass
Dichlorodifluoromethane	48	-3		yes
Chloromethane	39	-22		no
Vinyl Chloride	44	-13	yes	yes
Bromomethane	54	7		yes
Chloroethane	46	-8		yes
Trichlorofluoromethane	58	15		yes
1,1-Dichloroethene	53	6	yes	yes
Methylene Chloride	50	1		yes
Methyl-t-butylether	64	28		no
trans-1,2-Dichloroethene	54	8		yes
1,1-Dichloroethane	47	-6		yes
2,2-Dichloropropane	58	16		yes
cis-1,2-Dichloroethene	51	1		yes
Chloroform	57	15	yes	yes
Bromochloromethane	42	-16		yes
1,1,1-Trichloroethane	58	15		yes
1,1-Dichloropropene	56	12		yes
Carbon Tetrachloride	53	6		yes
1,2-Dichloroethane	53	5		yes
Benzene	53	7		yes
Trichloroethene	53	7		yes
1,2-Dichloropropane	42	-16	yes	yes
Bromodichloromethane	53	5		yes
Dibromomethane	45	-11		yes
cis-1,3-Dichloropropene	49	-1		yes
Toluene	60	20	no	no
trans-1,3-Dichloropropene	49	-3		yes
1,1,2-Trichloroethane	44	-12		yes
1,2-Dibromoethane	40	-21		no
1,3-Dichloropropane	41	-18		yes



Calibration Verification

EPA Method 8260B

Client: Secor International  
Project: Susan Davy Property - San Diego

Matrix: soil  
Units: ug/kg

Sample Name:

EPA 8260  
(-20 to +20%)

Amount Found

ccv

Percent Diff

Pass

Compound	Amount Found	ccv	Percent Diff	Pass
Tetrachloroethene	42		-16	yes
Dibromochloromethane	36		-29	no
Chlorobenzene	43		-15	yes
Ethylbenzene	46	CCC	-7	yes
1,1,1,2-Tetrachloroethane	42		-15	yes
m,p-Xylene	94		-6	yes
o-Xylene	45		-10	yes
Styrene	43		-14	yes
Bromoform	41		-18	yes
Isopropylbenzene	54		9	yes
1,1,2,2-Tetrachloroethane	42		-17	yes
1,2,3-Trichloropropane	45		-10	yes
n-propylbenzene	60		21	no
Bromobenzene	51		2	yes
1,3,5-Trimethylbenzene	56		12	yes
2-Chlorotoluene	59		18	yes
4-Chlorotoluene	58		16	yes
tert-Butylbenzene	52		4	yes
1,2,4-Trimethylbenzene	59		17	yes
sec-Butylbenzene	52		5	yes
p-Isopropyltoluene	52		5	yes
1,3-Dichlorobenzene	48		-4	yes
1,4-Dichlorobenzene	47		-6	yes
n-Butylbenzene	59		18	yes
1,2-Dichlorobenzene	43		-15	yes
1,2-Dibromo-3-chloropropane	40		-20	yes
1,2,4-Trichlorobenzene	49		-2	yes
Hexachlorobutadiene	55		11	yes
Naphthalene	40		-20	yes
1,2,3-Trichlorobenzene	45		-10	yes

SUMMATION

QC Limits(% Rec.)

Surrogates	Spiked	QC Limits(% Rec.)
DBFM	50 ng	80-120
1,2-DCA-d4	50 ng	65-135
Toluene - d8	50 ng	80-120
1,4-BFB	50 ng	65-135

All compounds PASS the average % Diff. Criteria  
54 compounds PASS the 20% criteria

CALIBRATION VERIFIED

## Footnote Summary

<u>Footnote</u>	<u>Definition</u>
E.Q.L. nd J	Estimated Quantitation Limit Not detected above the E.Q.L. or detection limit. The concentration reported is between the Method Detection Limit and the E.Q.L.
D	Concentration reported from a secondary dilution; E.Q.L.s adjusted accordingly.
B	Analyte found in the associated blank.
E	Analyte amount exceeds calibration range. Amount quantitated by extrapolation.
***	MS/MSD, LCS/LCSD recovery is outside QC range; no corrective action taken.
M S	Surrogate recovery outside QC range due to matrix interference. Because of necessary sample dilution, value was outside QC limits.
& #	Gasoline range organics not identified as gasoline. Diesel range organics not identified as diesel.
**	This compound has been screened by EPA method 8020. Any positive results should be confirmed by a second analysis.

**CHAIN-OF-CUSTODY RECORD**  
**P.O. #:** \_\_\_\_\_

CLIENT: SAS SECURE INTERNATIONAL DATE: 2/7/02 PAGE 1 OF 1 OUTSIDE LAB #           

ADDRESS: 2655 CAMINO DEL RIO NORTH TEG PROJECT #: SE 020702-L2

PHONE: 619 296 6195 FAX: 619 296-6199 LOCATION: SAN DIEGO

CLIENT PROJECT #: 0807.04926 PROJECT MANAGER: Peter Rubens COLLECTOR: Brian M. Gammie DATE OF COLLECTION: 2/7/02

[illegible]

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	LABORATORY NOTES:
<i>Bryan M. Moore</i>	2/8/02	<i>William A. Moore</i>	2/8/02 1:40p	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME	
<b>SAMPLE DISPOSAL INSTRUCTIONS</b>				
<input type="checkbox"/> TEG DISPOSAL @ \$2.00 each				
<input type="checkbox"/> Return				
<input type="checkbox"/> Pickup				
<b>SAMPLE RECEIPT</b>				
TOTAL NUMBER OF CONTAINERS				7
CHAIN OF CUSTODY SEALS Y/N/NA				
SEALS INTACT? Y/N/NA				
RECEIVED GOOD COND./COLD				
NOTES:				

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-1  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 080T.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-4/5'  
**Analyzed:** 03/12/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.005	ND
Toluene	0.005	ND
Ethylbenzene	0.005	ND
Xylenes	0.005	ND
Methyl-t-Butyl Ether (MTBE)	0.005	ND
Percent Surrogate Recovery		99
TOTAL PETROLEUM HYDROCARBONS		
Total Petroleum Hydrocarbons	0.5	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadyani  
Project Manager

VS70312  
MSD #7  
26840-1.xls  
DZ/sks/pv/jh



**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-2  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 08OT.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-4/10'  
**Analyzed:** 03/12/02  
**Method:** See Below

CONSTITUENT	PQL * mg/kg	RESULT** mg/kg
Benzene	0.1	ND
Toluene	0.1	ND
Ethylbenzene	0.1	0.4
Xylenes	0.1	1.2
Methyl-t-Butyl Ether (MTBE)	0.1	ND
Percent Surrogate Recovery		100

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	10.	80.
BTX as a Percent of Fuel		2

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

VS70312  
MSD #7  
26840-2.xls  
DZ/sks/pv/jh

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-3  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 08OT.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-4/12'  
**Analyzed:** 03/12/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.5	0.9
Toluene	0.5	21.
Ethylbenzene	0.5	20.
Xylenes	0.5	190.
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		102
TOTAL PETROLEUM HYDROCARBONS		
Total Petroleum Hydrocarbons	50.	1400.
BTX as a Percent of Fuel		15

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

VS70312  
MSD #7  
26840-3.xls  
DZ/sks/pv/jh

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-4  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 08OT.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-5/5'  
**Analyzed:** 03/12/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.005	ND
Toluene	0.005	ND
Ethylbenzene	0.005	ND
Xylenes	0.005	ND
Methyl-t-Butyl Ether (MTBE)	0.005	ND
Percent Surrogate Recovery		96
TOTAL PETROLEUM HYDROCARBONS		
Total Petroleum Hydrocarbons	0.5	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

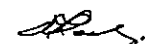
Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

VS70312  
MSD #7  
26840-4.xls  
DZ/sks/pv/jh

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-5  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 080T.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-5/10'  
**Analyzed:** 03/12/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.5	1.5
Toluene	0.5	18.
Ethylbenzene	0.5	11.
Xylenes	0.5	69.
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		100
TOTAL PETROLEUM HYDROCARBONS		
Total Petroleum Hydrocarbons	50.	960.
BTX as a Percent of Fuel		9

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VS70312  
MSD #7  
26840-5.xls  
DZ/sks/pv/jh

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-6  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 08OT.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-5/12'  
**Analyzed:** 03/13/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.5	3.9
Toluene	0.5	44.
Ethylbenzene	0.5	22.
Xylenes	0.5	150.
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		107

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	50.	1800.
BTX as a Percent of Fuel		11

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VS70312  
MSD #7  
26840-6.xls  
DZ/sks/pv/cccl/jh

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-7  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 080T.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-6/5'  
**Analyzed:** 03/13/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.005	ND
Toluene	0.005	ND
Ethylbenzene	0.005	ND
Xylenes	0.005	0.015
Methyl-t-Butyl Ether (MTBE)	0.005	ND
Percent Surrogate Recovery		99
TOTAL PETROLEUM HYDROCARBONS		
Total Petroleum Hydrocarbons	0.5	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VS70312  
MSD #7  
26840-7.xls  
DZ/sks/pv/cccl/jh

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-8  
**Collected:** 03/05/02  
**Received:** 03/06/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 08OT.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-6/10'  
**Analyzed:** 03/13/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.005	0.015
Toluene	0.005	0.040
Ethylbenzene	0.005	0.007
Xylenes	0.005	0.028
Methyl-t-Butyl Ether (MTBE)	0.005	ND
Percent Surrogate Recovery		102
TOTAL PETROLEUM HYDROCARBONS		
Total Petroleum Hydrocarbons	0.5	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VS70313  
MSD #7  
26840-8.xls  
DZ/sks/pv/jh

**Client:** Peter Rubens  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108

**Lab Number:** 26840-9  
**Collected:** 3/5/02  
**Received:** 3/6/02  
**Matrix:** Soil

**Project:** Susan Davey Property  
El Cajon, Ca  
**Project Number:** 080T.04926.0007  
**Collected by:** Brian M. Demme

**Sample Description:**  
SB-6/12'  
**Analyzed:** 3/13/02  
**Method:** See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.005	ND
Toluene	0.005	ND
Ethylbenzene	0.005	ND
Xylenes	0.005	ND
Methyl-t-Butyl Ether (MTBE)	0.005	ND
Percent Surrogate Recovery		99
TOTAL PETROLEUM HYDROCARBONS		
Total Petroleum Hydrocarbons	0.5	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: MTBE not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VS70312  
MSD #7  
26840-9.xls  
DZ/sks/pv/cccl/jh





QUALITY ASSURANCE REPORT  
BLANK RESULTS

Client:  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

Lab Number: BLK VS70312  
Collected:  
Received:  
Matrix: Soil

Project:  
Project Number:  
Collected by:

Sample Description:  
Instrument Blank  
Analyzed: 03/12/02  
Method: See Below

CONSTITUENT	PQL * mg/kg	RESULT ** mg/kg
Benzene	0.005	ND
Toluene	0.005	ND
Ethylbenzene	0.005	ND
Xylenes	0.005	ND
Methyl-t-Butyl Ether (MTBE)	0.005	ND
Percent Surrogate Recovery		99

TOTAL PETROLEUM HYDROCARBONS

Gasoline	0.5	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

VS70312  
MSD #7  
VS70312c.xls  
DZ/sks/pv

Submitted by,  
ZymaX envirotechnology, inc.

Dwain Zsadanyi  
Project Manager

**Client:**ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401**Lab Number:**

BLK VS70313

**Collected:****Received:****Matrix:**

Soil

**Project:****Project Number:****Collected by:****Sample Description:**

Instrument Blank

**Analyzed:**

03/13/02

**Method:**

See Below

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
Benzene	0.005	ND
Toluene	0.005	ND
Ethylbenzene	0.005	ND
Xylenes	0.005	ND
Methyl-t-Butyl Ether (MTBE)	0.005	ND
Percent Surrogate Recovery		96
TOTAL PETROLEUM HYDROCARBONS		
Gasoline	0.5	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Submitted by,  
ZymaX envirotechnology, inc.Dwain Zsadanyi  
Project Manager

VS70313

MSD #7

VS70313b.xls

DZ/sks/ccc

**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** QS VS70312  
**Collected:**  
**Received:**  
**Matrix:** Soil

**Project:**  
  
**Project Number:**  
**Collected by:**

**Sample Description:** Quality Assurance Spike  
**Analyzed:** 03/12/02  
**Method:** See Below

CONSTITUENT	Amount Spiked mg/kg	Amount Recovered mg/kg	Percent Recovery
Benzene	0.012	0.011	92
Toluene	0.162	0.157	97
Ethylbenzene	0.048	0.041	85
Xylenes	0.251	0.221	88
Methyl t-Butyl Ether (MTBE)	0.145	0.152	105
Percent Surrogate Recovery			102

**TOTAL PETROLEUM HYDROCARBONS**

Gasoline	2.50	2.71	108
BTX as a Percent of Fuel	17	14	

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

Note: Analyzed by EPA 8260 and GC/MS Combination.

VS70312  
MSD #7  
VS70312q.xls  
DZ/sks/jh

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** QSD VS70312  
**Collected:**  
**Received:**  
**Matrix:** Soil

**Project:**  
  
**Project Number:**  
**Collected by:**

**Sample Description:**  
Quality Assurance Spike Duplicate  
**Analyzed:** 03/12/02  
**Method:** See Below

CONSTITUENT	Amount Spiked mg/kg	Amount Recovered mg/kg	Percent Recovery	Relative Percent Difference*
Benzene	0.012	0.011	92	0
Toluene	0.162	0.159	98	1
Ethylbenzene	0.048	0.042	88	2
Xylenes	0.251	0.223	89	1
Methyl t-Butyl Ether (MTBE)	0.145	0.156	108	3
Percent Surrogate Recovery			102	

**TOTAL PETROLEUM HYDROCARBONS**

Gasoline	2.50	2.63	105	3
BTX as a Percent of Fuel	17	15		

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*Relative Percent Difference of the spike and spike duplicate

Note: Analyzed by EPA 8260 and GC/MS Combination.

VS70312  
MSD #7  
VS70312q.xls  
DZ/sks/jh

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

## SECOR Chain-of Custody Record



Additional documents are attached, and are a part of this Record.

Field Office: SECOR INTERNATIONAL INCAddress: 2655 CAMINO DEL RIO NORTHJob Name: SUSTAINABILITY PROPERTYSAN DIEGO, CALocation: 1279 1/2 1281 EAST MAIN STEZ CAYON - CAProject # 0807041926 Task # 0007Project Manager Peter RubensLaboratory LynaxTurnaround Time StandardSampler's Name Bryan M DemmeSampler's Signature Bryan M Demme

## Analysis Request

Sample ID	Date	Time	Matrix	HCID	TPH/BTEX/TPH-G 8015 (modified)/8020	TPHd/TPH-D 8015 (modified)	TPH 418.1/MTPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals 8015/8020	Comments/ Instructions	Number of Containers
SB-4/5'	3/5	0830	Soil													Strong HC odor	26840-1
SB-4/10'		0900														Strong HC odor	-2
SB-4/12'		0915														Strong HC odor	-3
SB-5/5'		1024															-4
SB-5/10'		1040														Strong HC odor	-5
SB-5/12'		1046														Strong HC odor	-6
SB-6/5'		1207															-7
SB-6/10'		1209															-8
SB-6/12'		1221															-9

## Special Instructions/Comments:

\* BTEX will be analyzed per O Demme  
3/6/02

## Relinquished by:

Sign Bryan M DemmePrint Bryan M DemmeCompany SECORTime 12:35 Date 3/6/02

## Received by:

Sign Bryan M DemmePrint Bryan M DemmeCompany SECORTime 13:35 Date 3/6/02

## Sample Receipt

Total no. of containers: 9Chain of custody seals: 1Rec'd in good condition/cold: 1Conforms to record: 1Client: SECOR INCClient Contact: Bryan DemmeClient Phone: 619 296 6195

**Client:** Brian Demme  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108-1633

**Lab Number:** 26673-1  
**Collected:** 02/19/02  
**Received:** 02/20/02  
**Matrix:** Aqueous

**Project:** Sosan Davey Property  
**Project Number:** 080T.04926.00.0010  
**Collected by:** Marcus Siefert

**Sample Description:**  
MW-1  
**Analyzed:** 02/24/02  
**Method:** See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	39.
Toluene	0.5	0.6
Ethylbenzene	0.5	69.
Xylenes	0.5	0.9
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	10.
Diisopropyl Ether (DIPE)	0.5	46.
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	78.
Percent Surrogate Recovery		101

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	50.	700.
BTX as a Percent of Fuel		6

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: Oxygenates not included in TPH result.

VA70223  
MSD #7  
26673-1.xls  
DZ/jgt/pv/cc

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

**Client:** Brian Demme  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108-1633

**Lab Number:** 26673-2  
**Collected:** 02/19/02  
**Received:** 02/20/02  
**Matrix:** Aqueous

**Project:** Sosan Davey Property  
**Project Number:** 080T.04926.00.0010  
**Collected by:** Marcus Siefert

**Sample Description:**  
MW-2  
**Analyzed:** 02/26/02  
**Method:** See Below

CONSTITUENT	PQL * ug/L	RESULT ** ug/L
Benzene	20.	640.
Toluene	20.	83.
Ethylbenzene	20.	270.
Xylenes	20.	830.
t-Amyl Methyl Ether (TAME)	20.	ND
t-Butyl Alcohol (TBA)	200.	ND
Diisopropyl Ether (DIPE)	20.	680.
Ethyl-t-Butyl Ether (ETBE)	20.	ND
Methyl-t-Butyl Ether (MTBE)	20.	ND
Percent Surrogate Recovery		108

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	2000.	6300.
BTX as a Percent of Fuel		25

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: Oxygenates not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VA110226  
MSD #11  
26673-2.xls  
DZ/jgt/pv/lz

Client: Brian Demme  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108-1633

Lab Number: 26673-3  
Collected: 02/19/02  
Received: 02/20/02  
Matrix: Aqueous

Project: Sosan Davey Property  
Project Number: 080T.04926.00.0010  
Collected by: Marcus Siefert

Sample Description:  
MW-3  
Analyzed: 02/26/02  
Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	ND
Diisopropyl Ether (DIPE)	0.5	ND
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		105

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	50.	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: Oxygenates not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VA110226  
MSD #11  
26673-3.xls  
DZ/jgt/pv/lz



**Client:** Brian Demme  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108-1633

**Lab Number:** 26673-4  
**Collected:** 02/19/02  
**Received:** 02/20/02  
**Matrix:** Aqueous

**Project:** Sosan Davey Property  
**Project Number:** 080T.04926.00.0010  
**Collected by:** Marcus Siefert

**Sample Description:**  
MW-4  
**Analyzed:** 02/26/02  
**Method:** See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	59.
Toluene	0.5	11.
Ethylbenzene	0.5	19.
Xylenes	0.5	54.
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	ND
Diisopropyl Ether (DIPE)	0.5	0.9
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	0.7
Percent Surrogate Recovery		102

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	50.	480.
BTX as a Percent of Fuel		26

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: Oxygenates not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VA110226  
MSD #11  
26673-4.xls  
DZ/jgt/pv/lz

**Client:** Brian Demme  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108-1633

**Lab Number:** 26673-5  
**Collected:** 02/19/02  
**Received:** 02/20/02  
**Matrix:** Aqueous

**Project:** Sosan Davey Property  
**Project Number:** 080T.04926.00.0010  
**Collected by:** Marcus Siefert

**Sample Description:**  
MW-5  
**Analyzed:** 02/26/02  
**Method:** See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	ND
Diisopropyl Ether (DIPE)	0.5	ND
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		104

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	50.	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

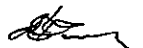
Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: Oxygenates not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadyi  
Project Manager

VA110225  
MSD #11  
26673-5.xls  
DZ/jgt/pv/lz



**Client:** Brian Demme  
SECOR International Inc.  
2655 Camino Del Rio N., Ste. 302  
San Diego, CA 92108-1633

**Lab Number:** 26673-7  
**Collected:** 02/19/02  
**Received:** 02/20/02  
**Matrix:** Aqueous

**Project:** Sosan Davey Property  
**Project Number:** 080T.04926.00.0010  
**Collected by:** Marcus Siefert

**Sample Description:**  
MW-7  
**Analyzed:** 02/26/02  
**Method:** See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	ND
Diisopropyl Ether (DIPE)	0.5	ND
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		105

**TOTAL PETROLEUM HYDROCARBONS**

Total Petroleum Hydrocarbons	50.	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Note: Analytical range is C4-C12.

Note: TPH quantitated against gasoline.

Note: Oxygenates not included in TPH result.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VA110225  
MSD #11  
26673-7.xls  
DZ/jgt/pv/lz

**Client:**ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401**Lab Number:**

BLK VA70223

**Collected:****Received:****Matrix:**

Aqueous

**Project:****Project Number:****Collected by:****Sample Description:**

Instrument Blank

**Analyzed:**

02/23/02

**Method:**

See Below

CONSTITUENT	PQL * ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	ND
Diisopropyl Ether (DIPE)	0.5	ND
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		95

**TOTAL PETROLEUM HYDROCARBONS**

Gasoline	50.	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

VA70223  
MSD #7  
VA70223b.xls  
DZ/jgt/pv/ccSubmitted by,  
ZymaX envirotechnology, inc.Dwain Zsadanyi  
Project Manager

**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** QS VA70223  
**Collected:**  
**Received:**  
**Matrix:** Aqueous

**Project:**

**Project Number:**  
**Collected by:**

**Sample Description:** Quality Assurance Spike  
**Analyzed:** 02/23/02  
**Method:** See Below

CONSTITUENT	Amount Spiked ug/L	Amount Recovered ug/L	Percent Recovery
Benzene	2.2	2.1	95
Toluene	26.5	25.7	97
Ethylbenzene	7.1	6.7	94
Xylenes	37.1	35.0	94
Methyl t-Butyl Ether (MTBE)	24.5	22.7	93
Percent Surrogate Recovery			101

**TOTAL PETROLEUM HYDROCARBONS**

Gasoline	500.	517.	103
BTX as a Percent of Fuel	13	12	

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

Note: Analyzed by EPA 8260 and GC/MS Combination.

VA70223  
MSD #7  
VA70223q.xls  
DZ/jgt/pv/cc

Submitted by,  
ZymaX envirotechnology, inc.

  
Dwain Zsadanyi  
Project Manager



QUALITY ASSURANCE REPORT  
SPIKE DUPLICATE RESULTS

**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** QSD VA70223  
**Collected:**  
**Received:**  
**Matrix:** Aqueous

**Project:**  
**Project Number:**  
**Collected by:**

**Sample Description:**  
Quality Assurance Spike Duplicate  
**Analyzed:** 02/23/02  
**Method:** See Below

CONSTITUENT	Amount Spiked ug/L	Amount Recovered ug/L	Percent Recovery	Relative Percent Difference*
Benzene	2.2	2.1	95	0
Toluene	26.5	25.9	98	1
Ethylbenzene	7.1	7.3	103	9
Xylenes	37.1	37.5	101	7
Methyl t-Butyl Ether (MTBE)	24.5	19.8	81	14
Percent Surrogate Recovery			100	

TOTAL PETROLEUM HYDROCARBONS

Gasoline	500.	474.	95	9
BTX as a Percent of Fuel	13	14		

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*Relative Percent Difference of the spike and spike duplicate

Note: Analyzed by EPA 8260 and GC/MS Combination.

VA70223  
MSD #7  
VA70223q.xls  
DZ/jgt/pv/cc

Submitted by,  
ZymaX envirotechnology, inc.

Dwain Zsadanyi  
Project Manager

<b>Client:</b> ZymaX envirotechnology, inc. 71 Zaca Lane, Suite 110 San Luis Obispo, CA 93401	<b>Lab Number:</b> BLK VA110225 <b>Collected:</b> <b>Received:</b> <b>Matrix:</b> Aqueous
<b>Project:</b>  <b>Project Number:</b> <b>Collected by:</b>	<b>Sample Description:</b> Instrument Blank <b>Analyzed:</b> 02/25/02 <b>Method:</b> See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	ND
Diisopropyl Ether (DIPE)	0.5	ND
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		105

## TOTAL PETROLEUM HYDROCARBONS

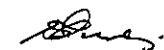
Gasoline	50.	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

VA110225  
MSD #11  
A110225b.xls  
DZ/jgt/pv/lzSubmitted by,  
ZymaX envirotechnology, inc.Dwain Zsadanyi  
Project Manager



**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** QS VA110225  
**Collected:**  
**Received:**  
**Matrix:** Aqueous

**Project:**  
  
**Project Number:**  
**Collected by:**

**Sample Description:**  
Quality Assurance Spike  
**Analyzed:** 02/25/02  
**Method:** See Below

CONSTITUENT	Amount Spiked ug/L	Amount Recovered ug/L	Percent Recovery
Benzene	3.0	2.6	87
Toluene	33.8	34.2	101
Ethylbenzene	9.0	8.9	99
Xylenes	46.7	48.7	104
Methyl t-Butyl Ether (MTBE)	34.7	40.0	115
Percent Surrogate Recovery			105

## TOTAL PETROLEUM HYDROCARBONS

Gasoline	500.	545.	109
BTX as a Percent of Fuel	17	16	

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

Note: Analyzed by EPA 8260 and GC/MS Combination.

VA110225  
MSD #11  
A110225q.xls  
DZ/jgt/pv/lz

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

**Client:**ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401**Lab Number:**

QSD VA110225

**Collected:****Received:****Matrix:**

Aqueous

**Project:****Project Number:****Collected by:****Sample Description:**

Quality Assurance Spike Duplicate

**Analyzed:**

2/25/02

**Method:**

See Below

CONSTITUENT	Amount Spiked ug/L	Amount Recovered ug/L	Percent Recovery	Relative Percent Difference*
Benzene	3.0	2.8	93	7
Toluene	33.8	35.6	105	4
Ethylbenzene	9.0	9.4	104	5
Xylenes	46.7	50.6	108	4
Methyl t-Butyl Ether (MTBE)	34.7	40.6	117	1
Percent Surrogate Recovery			106	

**TOTAL PETROLEUM HYDROCARBONS**

Gasoline	500.	570.	114	4
BTX as a Percent of Fuel	17	16		

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*Relative Percent Difference of the spike and spike duplicate

Note: Analyzed by EPA 8260 and GC/MS Combination.

VA110225  
MSD #11  
A110225q.xls  
DZ/jgt/pv/lzSubmitted by,  
ZymaX envirotechnology, inc.Dwain Zsadanyi  
Project Manager

Client:  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

Lab Number: BLK VA110226  
Collected:  
Received:  
Matrix: Aqueous

## Project:

Project Number:  
Collected by:

## Sample Description:

Instrument Blank  
Analyzed: 02/26/02  
Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
t-Amyl Methyl Ether (TAME)	0.5	ND
t-Butyl Alcohol (TBA)	5.0	ND
Diisopropyl Ether (DIPE)	0.5	ND
Ethyl-t-Butyl Ether (ETBE)	0.5	ND
Methyl-t-Butyl Ether (MTBE)	0.5	ND
Percent Surrogate Recovery		105

## TOTAL PETROLEUM HYDROCARBONS

Gasoline	50.	ND
BTX as a Percent of Fuel		N/A

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

VA110226  
MSD #11  
A110226b.xls  
DZ/jgt/pv/lz

**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** QS VA110226  
**Collected:**  
**Received:**  
**Matrix:** Aqueous

**Project:**  
  
**Project Number:**  
**Collected by:**

**Sample Description:**  
Quality Assurance Spike  
**Analyzed:** 02/26/02  
**Method:** See Below

CONSTITUENT	Amount Spiked ug/L	Amount Recovered ug/L	Percent Recovery
Benzene	3.0	2.6	87
Toluene	33.8	30.9	91
Ethylbenzene	9.0	8.6	96
Xylenes	46.7	45.3	97
Methyl t-Butyl Ether (MTBE)	34.7	36.5	105
Percent Surrogate Recovery			99

## TOTAL PETROLEUM HYDROCARBONS

Gasoline	500.	515.	103
BTX as a Percent of Fuel	17	15	

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

Note: Analyzed by EPA 8260 and GC/MS Combination.

VA110226  
MSD #11  
A110226q.xls  
DZ/jgt/pv/lz

Submitted by,  
ZymaX envirotechnology, inc.



Dwain Zsadanyi  
Project Manager

**Client:**ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401**Lab Number:**

QSD VA110226

**Collected:****Received:****Matrix:**

Aqueous

**Project:****Project Number:****Collected by:****Sample Description:**

Quality Assurance Spike Duplicate

**Analyzed:**

02/26/02

**Method:**

See Below

CONSTITUENT	Amount Spiked ug/L	Amount Recovered ug/L	Percent Recovery	Relative Percent Difference*
Benzene	3.0	2.6	87	0
Toluene	33.8	33.3	99	7
Ethylbenzene	9.0	9.1	101	6
Xylenes	46.7	48.3	103	6
Methyl t-Butyl Ether (MTBE)	34.7	37.8	109	3
Percent Surrogate Recovery			100	


## TOTAL PETROLEUM HYDROCARBONS

Gasoline	500.	545.	109	6
BTX as a Percent of Fuel	17	15		

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*Relative Percent Difference of the spike and spike duplicate

Note: Analyzed by EPA 8260 and GC/MS Combination.

Submitted by,  
ZymaX envirotechnology, inc.Dwain Zsadanyi  
Project Manager

VA110226

MSD #11

A110226q.xls

DZ/jgt/pv/lz

Chain-of Custody Number:

# SECOR Chain-of Custody Record

Field Office: San Diego  
Address: 2655 Camino Del Rio N # 302  
San Diego, CA 92108  
☐ Additional documents are attached, and are a part of this Record.  
Job Name: Sosa Davey Property  
Location: 1279#1281 E. Main St.  
El Cajon, CA

Project # 2807.04926.00 Task # 0010  
Project Manager Erica Verme  
Laboratory YMAX  
Turnaround Time Normal

Sampler's Name Maras Siedert  
Sampler's Signature [Signature]

## Analysis Request

Sample ID	Date	Time	Matrix	HCID	TPHg/BTEX/TPH-G 8015 (modified)/8020	TPHd/TPH-D 8015 (modified)	TPH 418.1/TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	TPHg, BTEX, MTBE K8260	DIEH, THME, ETEE, TZA, K8260	Comments/ Instructions	Number of Containers
MW-1	2/19/02	1140	H2O															20013-1	16
MW-2		1452																-2	
MW-3		1128																-3	
MW-4		1338																-4	
MW-5		1345																-5	
MW-6		1426																-6	
MW-7		1104																-7	

Special Instructions/Comments:

Please Fax Results

Relinquished by: Samir  
Sign [Signature]  
Print Maras Siedert  
Company SECOR  
Time 2:15 PM Date 2/19/02

Received by: [Signature]  
Sign [Signature]  
Print [Signature]  
Company [Signature]  
Time 2:15 PM Date 2/19/02

Received by: [Signature]  
Sign [Signature]  
Print [Signature]  
Company [Signature]  
Time 2:15 PM Date 2/19/02

Received by: [Signature]  
Sign [Signature]  
Print [Signature]  
Company [Signature]  
Time 2:15 PM Date 2/19/02

Sample Receipt  
Total no. of containers: 21  
Chain of custody seals: [Signature]  
Rec'd in good condition/cold: [Signature]  
Conforms to record: [Signature]

Client: [Signature]  
Client Contact: [Signature]  
Client Phone: [Signature]